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ANNUAL ORATION

THE APPRECIATION OF MEDICAL POLITICIANS*

BASIL E. BARTON, M.D.†

WEST ROXBURY, MASSACHUSETTS

THE seed of this discourse was planted several years ago when the Council of the Massachusetts Medical Society raised the dues to $35. It is well known that stimulation of the pocketbook will make the subject cry out. Members of the Society were at once heard crying out to each other: "What is this Council anyway? Who elects it? What do we get for our $35?" Those questions were actually put in so many words by men who are successful practitioners but who had never paid attention to anything outside their own practices. They had been too busy. One would suppose they could be answered readily enough; yet it was all but impossible to convince doubters that the Society is democratic, that the Council represents the membership, or that the districts are not run by cliques. When it was suggested to one man that because he was so much interested he would make a good councilor, his reply was that he did not want to be a "medical politician." He meant to imply that he had no urge to show himself in public, and no desire to dominate others. But what he really said was that although he declined to exercise his right to vote he still reserved his right to criticize.

Over the years one can see that to be a medical politician is gradually becoming more respectable. There must be a reason. In an office of the DuPont company there hangs, I have heard, a motto, which reads:

> In order to succeed
> You must satisfy a need.

It can be shown that today, as never before, there is need for medical politicians, that as a consequence their value is appreciating and that willy-nilly all physicians must participate in medical politics or be in danger of becoming something less than a profession. What does that mean? A few definitions will make the subject clearer.

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†Physician, Faulkner Hospital.

DEFINITIONS

Medical Politician

A medical politician means to me a physician (or even a layman) who not only talks about nonclinical medical problems but tries to do something about them. He is actively concerned with the ethics, the economics and all the other social implications of his profession. If, incidentally, he is also afflicted, like the poet Bunthorne, with a "morbid love of admiration" that is his misfortune. Of course, you here today are covered by this definition or you would not be here, and I realize that it is always the congregation in the pews who least need the sermon. One can only hope that the backsliders will read it later.

Profession

A profession has been described by Professor Himsworth as a purely social concept, implying a sort of contract between society and the profession. Society, the party of the first part, agrees that a group of men and women, having been trained intensively to perform a function that is uniquely valuable to society, shall be accorded special privileges, so that their work may be accomplished without interference. The profession, the party of the second part, agrees merely to act always so as to warrant that trust.

The function of the medical politician is to see that each party lives up to the letter of the agreement. Alert medical politicians realize that an amorphous, faceless state is not the only large organization that can dictate to the medical profession. What about the nation-wide medical facilities of the Veterans Administration? What about the Trades Union Health Centers such as the Garment Workers' Center in New York, the Labor Health Institute of the Teamsters' Union in St. Louis, the centers of the Amalgamated Clothing Workers in New York, Chicago, Philadelphia and other cities, and the Hotel Association Health Center of the New York Hotel Trades Council? What about the argument of metropolitan hospitals that

modern methods justify their sending patients home to continue treatment by the hospital staffs, thus saving, so they say, the expense of long hospitalization? What about the Kaiser–Permanente plan or the Health Insurance Plan of New York or any other scheme whereby large groups of patients are treated by small groups of salaried physicians, whether or not this involves exploitation of the salaried physicians?

I am not here to pass judgment on these sudden innovations. My point is that they are here and that there is no excuse for any practicing physician to be unconcerned about them. My thesis is that it is both honorable and necessary for the medical profession to try its hand at influencing the method by which the wonders of medicine are furnished to the people. There are hundreds, perhaps thousands, of lay volunteers for this job. Some of them are hucksters with an ax to grind. Here is a commodity, they say, and it should be sold. Yet the members of the medical profession make up the commodity that is about to be sold, and surely there is every reason why they should want to have a voice in their own disposition. It will prove extremely practical, particularly for the younger physicians, "to take arms against a sea of troubles And by opposing end them," instead of merely, in the words of a later and lesser poet, to

> Awake, arise, resume our clothing,
> And crawl another day toward dying.

To those who shy away from medical politics I should like to quote a statement by the late Frank Buchanan, of Ohio, once chairman of the House Committee on Lobbying Activities:

> Groups and individuals seek to influence government and education as a matter of constitutional rights. We cannot in any way abridge those rights without poisoning our system. I cannot imagine Congress operating without pressure groups. They raise issues, clarify them, and often provide the facts and points of view which are necessary to equitable legislation. The problem is to keep group activity honest with respect to its methods and open to public scrutiny.

Growth of Influence of Medical Politicians

This nation, being the age that it is, has lately been through a series of sesquicentennials. In 1931, for instance, the eloquent Harvey Cushing's oration celebrated the sesquicentennial of the Massachusetts Medical Society. It may or may not interest the fellows to learn that today is the sesquicentennial of the Massachusetts Medical Society Orations—a good place to stop and look both ways. A hundred and fifty years from now will be the three hundredth anniversary, in the year 2104! Human enterprises have a way of lasting just so long and then subsiding into dust, and the runaway technology of the present seems to act as a catalyst to hasten their disintegration. This being the case, it could be that today marks the half-way point, the point of no return, in the annual orations. For, if it is granted for the sake of argument that the glory of the Egyptian empire lasted four thousand years, that of the Roman a thousand and that of the British four hundred, who can say that the Society will retain its spark longer than three hundred years—or beyond the year 2104? It is admitted that the Massachusetts Medical Society is by no means equivalent to the whole of American culture, yet in every land the flowering of medicine has always been coterminous with the nation's fertile period. What this country will be like in 2104 no one can say. Benito Mussolini, it will be remembered, thought that in view of the vital statistics it would largely be a nation of Negroes, and Arnold Toynbee, a better judge, predicted that French Canadian would be the predominant stock. At any rate the United States will no longer be a young nation in a hurry, but rather, like Shakespeare's Justice, "In fair round belly, with good capon lined," with too much at stake to take chances and ready to exchange initiative for social security. Indeed there are signs that this is already happening.

If all this seems to take too much for granted, it will at least be agreed that before 1932 it would have been inconceivable that medical economics, which had apparently evolved comfortably into a function of the American Medical Association, would be, as pointed out below, in danger of becoming instead a creature of the trades unions. Not that there were no social problems before President Roosevelt, but rather that the medical profession up to then felt secure. The physician had his definite place in society. He followed the call of his profession and in doing so was sure to make a living. Today, however, everyone knows that things have changed—everyone, that is, except those who refuse to enter into medical politics. American society is becoming stabilized and class conscious,—in other words, more like Europe,—and if it is to be spared the trials Europe went through it must study to avoid their mistakes. Should physicians stand aside, letting things go and then complaining if they do not like developments, or should they take an active part in the conflicts that are brewing?

Agreeing, then, that all doctors are going to be medical politicians, the tools they have to work with should first be examined. These tools are the ideas that have evolved since men first attempted to organize and influence medical practice. One need go no farther back than seventeenth-century England, when the European world was emerging from the Middle Ages. This was a time of great curiosity, reform and innovation. An excellent description of the medical care of that day and its significance for the present-day system is given by George Rosen in the *Bulletin of the New York Academy of Medicine*. Even after the Middle Ages, he says, medical indigence was regarded as a disgraceful social disease caused by lack of methodical, constant labor. Poverty, moreover, was considered a potential danger to the national economy. For this reason alone the Elizabethan Poor Laws were enacted to relieve the "lame, impotent, old, blind, and such other . . . being poor and unable to work." These laws were set up not because of the Ten Commandments or the Beatitudes but rather be-

cause the Queen's ministers had computed on the one hand the cost of idleness to the nation and on the other the increase in national wealth if the poor could be made productive. (These are reasons that are being used today, to prove that medical care should be tax-supported.) Since fertility and population were national assets conditions should be created that would promote health, prevent disease and render medical care accessible to all. The number of trained physicians was small, and medical practitioners more and more formed a group of steadily improving status and remuneration, so that their services were not generally available to the poor. Today, that situation would have been taken care of by the women's magazines, but in the seventeenth century there were no feature writers and columnists. There were, however, pamphleteers who espoused special causes and were widely read. So the pamphleteers got to work.

In 1641 a certain Samuel Hartlib wrote "A Description of the Famous Kingdom of Macaria," which consisted of proposals for social and economic reform, a special feature being a "College of Experience, where they deliver out yearly such medicines as they find out by experience; and all such as shall be able to demonstrate any experiment for the health and wealth of other men are honorably rewarded at the public charge"—a sort of Elizabethan Nobel Prize. In 1647 he suggested an "Office for the Relief of Human Necessities," in which one function would be a listing of physicians willing to give their services gratis. Such offices were actually organized in London in 1650 though apparently the idea died aborning. Three hundred years later they emerge in modified form as emergency coverage services.

The awakened enthusiasm of that age is perhaps best represented in the writings of another of the pamphleteers, an unusual character named Sir William Petty. He was Deputy Professor of Anatomy at Oxford, Doctor of Physic and one of the first members of the Royal Society, and was described as "excelling in all mathematical and mechanical learning." What is more important today he was also the pioneer in the science of comparative statistics. He proposed that the optimum number of medical personnel be calculated and adjusted to the actual need for medical care:

> As for physicians, it is not hard by the help of observations . . . to know how many are sick by the number of them that dye . . . and . . . to calculate how many physicians were requisite for the whole nation; and consequently how many students in that art to permit and encourage; and lastly, having calculated these numbers, to adaptate a proportion of chyrurgeons, apothecaries, and nurses to them and so by the whole to cut off and extinguish that infinite swarm of vain pretenders into, and abusers of that God-like Faculty. . . .

He made it sound so easy that one wishes he might be alive today to act as arbiter between Dr. Means and the American Medical Association.

He had read Hartlib's essays, and at the age of twenty-four he wrote a thirty-page book entitled, "The advice of W. P. to Mr. S. Hartlib for the Advancement of Some Particular Parts of Learning." In it he set forth his views on the social and economic implications of health problems. George Rosen calls this book "beyond all comparison the most significant English contribution to this area of social thought prior to the nineteenth century." Sir William took the position, revived in the present time as the "New Deal," that although the Government undoubtedly had the right to harness individuals or groups to the needs of the State, public policy demanded that their living standards be improved so that the people would be healthy and happy. He reiterated the theme that hospitals are crucial in medical research and education.

> Another cause of defect in the art of medicine and consequently of its contempt is that there have not been Hospitalls for the accommodation of sick people, Rich as well as Poor, so instituted and fitted as to encourage all sick persons to resort unto them . . . [for] a man shall learn in a well regulated hospitall, where he may within halfe a hower's time observe his choice of a thousand patients, more in one year than in ten without it, even by reading the best Books that can be written.

He supplemented his general recommendations by specific proposals. The hospital was to be fully equipped with an anatomic theater, a chemical laboratory, an apothecary shop, a garden and a library. There would be a physician-in-chief, who "shall either dissect or overlook the Dissection of Bodies dying of Diseases, and lastly shall take care that all luciferous Experiments whatsoever may be carefully brought to him, and recorded for the Benefit of Posterity." There would also be a surgeon and an apothecary, and students would learn by accompanying members of the staff from patient to patient.

All this was in 1648, over three hundred years ago, when the American settlements were still nothing but an untidy fringe along the vast wilderness, and the only American hospital was the pesthouse.

For in America in the early years there was little time for the purely extraclinical or political side of medicine. During the first hundred and fifty years the settlers were too busy fighting off the Indians from the west and the tax collectors from the east. But the raw struggle for survival having been won by the end of the eighteenth century, they could turn to developing their own distinctive culture. It would have to be based, because they knew nothing else, on the thinking of the England from which they had come. An early manifestation was the founding in 1781 of the Massachusetts Medical Society. Only twenty-three years later the Massachusetts Society founded in turn the series of annual discourses of which today's is one. These discourses make interesting if uneven reading, and one may obtain from them a running commentary on a century and a half of medical thought, by "sifting them," as a certain lady novelist puts it, "keeping what is worth keeping, and then with the breath of kindness blowing the rest away." The titles chosen by the speakers since 1804

show a gradual shift in emphasis away from clinical subjects and an increasing preoccupation with public relations.

History of the Orations

The original offering a hundred and fifty years ago today was that of Isaac Rand, president of the Massachusetts Medical Society, "On Phthisis Pulmonalis and the Use of the Warm Bath." His was followed in succession by talks on mercury, narcotic vegetable substances, heat and cold, and blisters. The first philosophic discussion was in 1811, by Josiah Bartlett, of Charlestown, "On the Progress of Medical Science in Massachusetts." This idea must have had great appeal, for it has recurred once in every generation since then. In 1823 Henry Childs, of Pittsfield, spoke "On the Progress of Medical Science in this State." A hundred years ago William Workman, of Worcester, not to be limited by state lines, talked "On the Progress of Medical Science" (period). In 1861 Oliver Wendell Holmes switched the title to "Currents and Counter-currents in Medicine," and the switch must have caught on, for in 1886 R. W. Hodges, of Boston, called it "Undercurrents of Modern Medicine." In 1916 David Edsall used the variation "Movements in Medicine," and in 1933 Channing Frothingham, "The Trend of Medicine in the 20th Century." Of the first ten lectures all but one had been concerned with single clinical entities, but of the last ten, since World War II, only two can be called clinical: Dr. Frank Lahey's, on "Gastric Surgery," and Dr. John O'Meara's, on "Management of Fractures." In between appeared treatises such as George C. Shattuck's, in 1826, "On the *Un*certainty of the Healing Art," which seems to have been contradicted by Morrill Wyman's, in 1863, "On the Reality and *Certainty* of Medicine." In 1865 Benjamin Cotting, of Roxbury, used a curious title, "Disease—A Part of the Plan of Creation." (There is absolutely no indication that he intended it as an apology before the fact for the luncheons that have since born his name.)

Then, as the century drew to a close, the orations came to treat almost not at all of disease in the individual patient and more and more of mass relations with the public. The oration of 1875 was entitled "The Interests of the Public and the Medical Profession," that of 1884, "The Physician a Popular Educator," that of 1888, "Reestablishment of the Medical Profession," that of 1892, "The Medical Profession and the Commonwealth," that of 1894, "The Legislative Control of Medical Practice, and that of 1895, "The Physician's Extraprofessional Duties."

For a while after the turn of the century the orators tended to focus on surgery. Possibly this was a reflection of the developments in asepsis, anesthesia and pathology that were beginning to make surgery more attractive and resulted in the advent of the great surgical personalities of that era.

Then came the social upheavals accompanying World War I, and the orations again evidence concern with the public's part in the practice of medicine. One example was Horace D. Arnold's oration in 1914, "The Education of the Public in Medical Matters."

Meanwhile, a trend toward community care of the sick was developing in Massachusetts. In the oration of 1918 Myles Standish viewed this development as a not unmixed blessing, for he took as his subject "Socialization of the Practice of Medicine." He listed the opening of the Massachusetts General Hospital in 1811, the formal establishment of its outpatient department in 1846 and the beginning of Social Service there in 1905 as milestones in the humanitarian or medical side of the question. But, he continued, "for the last two decades a demand for governmental aid and authority . . . has been pressed from the economic side, the argument being [and now one hears Sir William Petty speaking from his three-hundred-year-old grave] that the health and efficiency of the community was an economic asset of great value and therefore the law should compel manufacturing corporations and the people themselves to provide for the prompt restoration of health to the incapacitated." As a result of this demand an act was passed in 1911 requiring compulsory insurance by employers against industrial accidents. At first the insurance companies would pay only their own contract physicians, and it was not until 1917 that the injured employee was allowed his own choice of physician. One may be sure that this amendment was forced by the medical politicians of thirty-seven years ago.

Between the two world wars came the report of the Committee on the Costs of Medical Care, which is still the subject of controversy. Many of those present today heard reverberations of the Report echoing in the orations of Lincoln Davis, in 1934, on "Objectives of Medical Progress," Elliott Joslin, in 1939, on "Phases of Social Medicine," A. Warren Stearns, in 1941, on "The Role of the Physician in a Competitive Society," and Leland McKittrick, in 1947, on "Medical Care in Our Free Society." These politically minded orations, coming in such rapid succession, were in effect storm signals that the medical winds were blowing steadily from the socioeconomic quarter and with increasing force.

Extension of Medical-Care Benefits

Then, suddenly, after World War II, the profession was confronted with full-blown, organized bargaining by the trades unions for medical-care benefits. This is the development that if carried to extremes may yet take over the practice of medicine. The whole movement is described in the *British Journal of Social and*

Preventive Medicine for July, 1953, by Dr. Thomas Parran and Isidore Falk. It all began during the war, when wages were frozen to prevent inflation, but with the provision that 5 per cent of the payroll be approved as a "noninflationary" sickness benefit, deductible from the employer's taxes. If a corporation's excess profits were substantial it could, and usually did, provide, without a penny of cost to itself equally substantial sickness benefits. Thus, most of the first benefits were essentially employer paid in lieu of a raise in wages. Previously, many of the industrial medical-care plans had been created by a checkoff from the wages of the employees, though they had no voice in administering the plans. Collective bargaining was endorsed by the Wagner Labor Act of 1933, and the successive Wagner–Murray–Dingell bills represented Labor's ideas for the prepayment of medical care. The concept of group insurance for medical expenses soon led to Blue Cross, Blue Shield and various commercial plans, and the economics of medical care began to change as the profession watched.

But still collective bargaining with the intention of making the employer foot the bill persisted. By 1945 about 600,000 workers were covered. In 1946 almost 600,000 more came in when the United Mine Workers Welfare and Retirement Fund was created. The steel strike of 1949 revolved around this issue, and in that year the United Steel Workers and the United Auto Workers, 2,000,000 strong, signed agreements that included hospital and surgical service, contributed to jointly by union and company. By 1953 practically all large trade unions possessed partial hospitalization and surgical expense agreements. In 1952 the American Federation of Labor went a step farther when eleven of its constituent unions combined to form the A.F.L. Medical Service Plan in Philadelphia. It is now projecting a similar intercraft center in Chicago, and one in San Francisco. It is important to realize that such projects will involve a majority of the population of those cities, and the vast changes thus set in motion can be only partially imagined. It is inevitable that these ambitious trades-union plans will greatly influence future national health legislation. It is equally inevitable that they will greatly influence the conditions under which physicians must work.

Perhaps, as Dr. James Means says in his recent book, the most contentious question of the day is how far the Government shall participate in medical care. For the time being one will accept Dr. Means's appraisal of the Veterans Administration's medical program as the longest step thus far toward state medicine. One has only to read Admiral Boone's twenty-six-gun salute to the Veterans Administration in the February 27 issue of the *Journal of the American Medical Association* to realize the immensity of its operations. Without belaboring the point, one has to be interested, both as a physician and as a taxpayer, in any federal hospital system that admits over 500,000 patients a year.

However, it begins to look as if by sheer weight of numbers the huge intercraft medical-service plans may take over first place for contentiousness. Any organization that serves a majority of the population controls an awful lot of votes.

Discussion

As pointed out above, it is not in the province of this oration to say what is good and what is bad. Its only purpose is to interest physicians in becoming medical politicians, who, according to my definition, not only talk about the medical weather but do something about it. The weather is stormy, and one must act quickly or suffer the consequences. Politics is everything to the future of medicine. Whether medicine, the arts or the sciences flourish or starve is ultimately the decision of politicians. All physicians as such can do is to point out the facts; as politicians they can hope to determine not only the social and economic directions the profession shall take but even whether the present golden age of medical discovery is to continue. If they ignore the history of England and New Zealand and allow American medicine to become state medicine most members of the profession believe that the progress of medicine will bog down to the speed of Civil Service, chiefly because brilliant young men will no longer be attracted to it. Still, one cannot, as Henry Sigerist is fond of pointing out, successfully oppose trends, because they are part of the evolution of society. But if the doctor recognizes and co-operates with them he may be able to head them in the direction he believes is right. An individual's voice is lost, but an organized young medical generation could have great influence in future developments. It had better, for it is its own future that is being prepared. Otherwise it will be in the position of the lady in the London blitz who complained, "The worst of it is you may be knocked right into maternity and you would never know who did it." It is more satisfying to be informed. If the private practice of medicine is to be knocked right into eternity physicians should at least know who is doing it.

I have had time to speak only of national and world-wide issues. Few physicians can step directly onto the national scene. Yet I hope it will by now be agreed that all should get in the picture. I suggest that those who do not quite know how to go about it begin at the grass-roots level, which means, attend the district-society meetings and talk when they have something to say, and attend the Council meetings too. (They may not know that any member of the Society is welcome to do so, whether he is a councilor or not.) It will not be long before they are chosen to take an active part in the work of their organization, and from there it is up to them. If, for instance, they have no unusual ability but do have unusual friends, they may even be asked to deliver the Annual Oration.

In a civilization where man is free to choose what he will and will not do it is the volunteer who is important. This is the theme of James Michener's excellent book, *The Bridges at Toko-Ri*. Everyone remembers the passage where Admiral Tarrant is talking to Lieutenant Brubaker, the pilot who has just been rescued from his sinking plane (the lieutenant would much rather have stayed home with his family and his law practice):

> "Burdens always fall on a few," said the admiral, "You know that. Look at this ship. Everyone aboard thinks he's a hero because he is in Korea. But only a few of you ever really bomb the bridges."
>
> "But why my wife and me?"
>
> "Nobody ever knows why he gets the dirty job. But any society is held together by the efforts—yes, and the sacrifices, of only a few."

Conclusion

I realize that I have not answered the two questions, "Who are the Council?" and "How are they elected?" The answers can be found in the *By-Laws* of the Society. The answer to the question "What are we getting for our $35?" will be understood by all who take part in the meetings of the Society. If they will do so this paper will have been worth while; otherwise, it will not.

Of course, what I have had to say has not been original. It was derived from many sources, and I hope that the reaction will not be that of the old lady who was taken to see *Hamlet* for the first time. When asked how she liked it she replied, "Oh, it was all right, but it was too full of quotations."

WORK ADJUSTMENT FIVE TO TEN YEARS AFTER BILATERAL PREFRONTAL LOBOTOMY*

Follow-up Study of 86 Patients with Chronic Mental Disease

Milton Greenblatt, M.D.,† Marie Wingate, M.S.,‡ and Harry C. Solomon, M.D.§

BOSTON

THE lobotomy operation for the treatment of mental illness has been used at the Boston Psychopathic Hospital since October, 1943. The first 450 patients received bilateral prefrontal lobotomy (developed by Dr. James L. Poppen and his associates at the Lahey Clinic). To assess the effectiveness of this method of treatment groups of patients have been followed, and various aspects of their adjustment have been studied. A careful clinical follow-up study of the first 250 cases, one to four years after operation, has already been presented.[1] Another follow-up study was done five years postoperatively on the first 100 patients who received this operation.[2] The same cases are the basis for the present study, which primarily concerns the work adjustment of patients five to ten years after lobotomy. This aspect was chosen since the expected economic sufficiency and productivity of the patient is of prime interest in any consideration of the effectiveness of a therapeutic procedure.

Four periods in the patient's working life — before illness, before operation, one to four years after operation and more than five years after operation — were investigated to ascertain, first, how their postoperative work adjustment compared with that before operation and, secondly, whether the work adjustment was the same, better or worse five to ten years after operation than at an earlier postoperative period.

Method

Information was obtained on the first 100 patients five to ten years after lobotomy. Of this group 12 had died, 35 were living in the community, and 51 were in State hospitals. There was no information on 2 patients, who had moved out of the State. Thus, the total number of patients whose work adjustment data were available was 86. Of the 35 patients in the community, 32 were interviewed directly by a social worker or psychiatrist or both; 3 patients could not appear for interviews, and information was obtained by telephone. Reports on the 51 hospital patients were obtained from hospital physicians on request.

Population

All the patients in this study were operated on between October, 1943, and April, 1946. They were all chronically ill, and the prognosis was considered hopeless. Fifty per cent had been ill for five years before operation, about 25 per cent for five to ten years, and the rest for ten years or longer. The hospital period was two years or less in 50 per cent, two to ten years in 25 per cent and ten years or longer in 25 per cent of cases.

There were 49 women and 37 men in this study. Of the 86 patients 40 were married, and 46 were single. Over half had graduated from high school,

*From the Department of Psychiatry, Harvard Medical School, and the Boston Psychopathic Hospital.
Aided by a grant from the Harrington Fund of the Harvard Medical School.
†Assistant clinical professor of psychiatry, Harvard Medical School; chief of laboratory and research, Boston Psychopathic Hospital.

‡Research associate, Boston Psychopathic Hospital.

§Professor of psychiatry, Harvard Medical School; medical director, Boston Psychopathic Hospital.

and 15 from college; the rest had gone no farther than grammar school. In the period before illness most of the patients had been skilled laborers, clerical employees or housekeepers.

During the period that these 86 patients were operated on many of the hospitals in the area referred patients to the Boston Psychopathic Hospital for the lobotomy operation, owing to their own lack of facilities; 53 of the patients studied were referred in this manner, and 33 more directly from the community.

Definitions

The following definitions were used in the evaluation of work adjustment:

Good Work Adjustment

Good adjustment indicated that a patient went to work every day and apparently did his work well. If she was a housewife or the family housekeeper she was able to do her housework to the satisfaction of the family, without outside help. If the patient was in a paid position outside the home, "good adjustment" meant that he had not had frequent job changes or long periods of unemployment. A student carrying a full study program satisfactorily rated a good adjustment. This classification of State hospital patients meant that they worked steadily on a job besides occupational therapy or routine ward duties. Since it was usually inadvisable to obtain detailed information from employers concerning the quality of work performance the appraisal did not include an evaluation of the work performance on the job except for housewives, concerning whom a member of the family gave information whenever possible.

Fair Work Adjustment

This classification signified that a patient made only intermittent attempts to work. With housework, the interest was sporadic and not sustained; the housewife got the work done only with assistance and prodding on the part of the family. A patient with a job or studying outside the home worked inconsistently. In the hospital setting a fair rating was given to a patient who worked part time at jobs such as helping on the ward with the care of other patients or raking leaves.

Poor Work Adjustment

Work adjustment was considered poor when no work was done or work was completely unsatisfactory. A housekeeper so classified did not make her bed, cook meals or keep her home neat and clean. Those eligible to work or study outside the home were not so occupied.

The following categories were used to indicate how much time the patients spent on their jobs:

Full Time

This classification indicated that the patient fulfilled the expected requirements of full-time employment (forty or more hours a week) or study program at the time of follow-up report. At home, the patient fulfilled total responsibility of looking after her home throughout the day. In the hospital a patient who worked the maximum period (usually six hours a day) received the maximum rating.

Part Time

Part time signified that the patient worked less than forty hours a week at a paid job or at school. Work at summer jobs alone was also rated "part time." At home such an evaluation involved helping the person responsible for running the home with household tasks. In the hospital the patient worked "part time" if he spent less than maximum time every week helping either on the ward or in industry.

In rating mental status the following criteria were used:

Good

Patients who, after the operation, were completely relieved of all mental symptoms of the psychosis were considered to have a good status.

Fair

This classification indicated a partial remission of most if not all symptoms. If, for example, delusions and hallucinations were less vivid, anxiety diminished, and disorganization reduced, or if complete remission was obtained in one such category, a rating of fair mental status was given.

Poor

Psychotic conditions that remained essentially unchanged were so rated.

Data and Results

Changes in Work Adjustment

Table 1 shows the work adjustment of 86 patients during four periods in their lives. In the period before illness the highest level of work efficiency obtained, 94 per cent receiving a rating of either "good" or "fair." In the preoperative period, during psychosis, work efficiency was greatly impaired; a rating of either "good" or "fair" being given in 18 per cent and only 2 per cent of patients in the total series being regarded as "good" in work activity. Adjustment was considered either "good" or "fair" in 57 per cent of the patients one to four years after operation and in 56 per cent five to ten years after operation. These figures indicate a marked fall in efficiency during psy-

chosis and a distinct improvement after operation, but the work adjustment did not reach the level of efficiency observed before illness. If the figures in the category of "good" work adjustment are compared across the board it is seen that the fall in efficiency was greatest in this category during psychosis and that after operation almost half the patients returned to a "good" work adjustment. The fall in efficiency during psychosis was considerably less in "fair" work adjustment but the postoperative gain was quite up to the level before illness. The figures for "poor" work adjustment reflect the changes described above.

Comparison of the statistics one to four years with those five to ten years after lobotomy reveals that the earlier postoperative work efficiency was maintained without decrement over the longer period. Since the labor market in the earlier period (World War II) was more favorable to finding and holding jobs than the later period (after World War II) the findings suggest not only maintenance of work efficiency but also a possible improvement over the long run.

Further analysis reveals that at the five-year to ten-year follow-up period 35 patients, or 41 per cent of the total series of 86, were working full time, and 16, or 19 per cent, were working part time. Breakdown of full-time or part-time work is not available for the earlier follow-up period.

TABLE 1. *Over-All Work Adjustment of 86 Patients.*

ADJUSTMENT	PERIOD			
	BEFORE ILLNESS	BEFORE OPERATION	1–4 YR. AFTER LOBOTOMY	5–10 YR. AFTER LOBOTOMY
Good	57	2	24	25
Fair	24	14	25	23
	81 (94%)	16 (18%)	49 (57%)	48 (56%)
Poor	3	67	37	37
Unknown	2	3	0	1
Totals	86	86	86	86

TABLE 2. *Over-All Work Adjustment of 35 Community Patients.*

ADJUSTMENT	WORKING PERIOD			
	BEFORE ILLNESS	BEFORE OPERATION	1–4 YR. AFTER LOBOTOMY	5–10 YR. AFTER LOBOTOMY
Good	26	1	15	16
Fair	7	8	14	12
	33 (94%)	9 (26%)	29 (83%)	28 (80%)
Poor	1	25	6	7
Unknown	1	1	0	0
Totals	35	35	35	35

"Community" and "Hospitalized" Patients

The relative work efficiency after operation of patients in the community and those in the hospital was compared. At five to ten years after operation, there were 51 patients in the hospital and 35 in the community; this compares with 45 and 41 respectively one to four years postoperatively. Between the two follow-up periods, 8 community patients had been readmitted to the hospital, and 2 hospitalized patients had been discharged to the community.

Patients in the community. Table 2 shows that the adjustment of the 35 community patients was rated "good" or "fair" in 33 (94 per cent) in the period before illness, in 9 (26 per cent) in the preoperative period, in 29 (83 per cent) one to four years after operation and in 28 (80 per cent) five to ten years after operation; after lobotomy there was a striking improvement — almost up to the level before illness. In general work adjustment at any period (except before illness) was above that of the total group, and much above that of the hospitalized group.

Five to ten years after operation, 24 (68 per cent) of the community patients were working full time, and 5 (14 per cent) part time; 5 were not working at all. Thus, altogether, two thirds of the community patients were essentially self-supporting, and 82 per cent were contributing more or less to their maintenance in the community. These figures indicate a high level of performance considering the fact that preoperatively all patients were chronically ill.

The 5 patients in the community who were not working at all, and were therefore wholly dependent on their families, were all females. No fully dependent males were in the community at the end of the five-year to ten-year follow-up period. This suggests that relatives are more willing to accept women in the dependent role than men, who are expected to make a definitive contribution to the family welfare if they are to win a place in the home.

The occupation of the 35 community patients before illness was compared with that of the same group five to ten years after operation. Twenty-one, or 60 per cent, were working at the same type of work as they had been before illness. Six (7 per cent) were doing less skilled work, going from skilled labor, clerical work or housekeeping to unskilled labor. On the other hand a patient who had done nothing before illness was holding a job as an errand boy. Another, who was a college student before illness, resumed his studies after operation and became a competent, self-supporting geologist.

Thus, the majority of community patients held similar types of jobs after operation as before illness. The remainder showed a small tendency toward less skilled occupations, and occasional patients were doing better than before. A correlation was made between work adjustment and mental status five or more years after lobotomy. The 16 patients with a good work adjustment all had good mental status, which may thus be essential for performance of a good job in the community. The other 9 patients with good mental status had either fair or poor work adjustment so that good mental status did not necessarily ensure a good work adjustment.

Of the 35 patients in the community at the end of the follow-up period of five to ten years 11 were housewives, responsible for the maintenance of a home. All had been efficient, competent people before illness but had so deteriorated that none had a "good" work-adjustment rating. It was interesting that 6 of the 11 returned to a "good" work adjustment after lobotomy and maintained this level throughout the follow-up period. Two received a "fair" rating at the first postoperative follow-up examination, and 3 at the end of the follow-up period of five to ten years. Thus, 9 out of 11 housewives returned to some degree of competence, and made a definite contribution to the family's welfare.

Patients in the hospital. Table 3 shows the changes in work adjustment of 51 patients who were in the hospital at the end of the follow-up period of five to ten years. Efficiency was at the same level as that of the community cases (94 per cent either "good" or "fair"); however, the illness level was lower than that of the community cases (26 per cent). Patients hospitalized after operation showed much improvement, but considerably less than that in the community cases. However, unlike community cases, the level at the end of the follow-up period of five to ten years (43 per cent either "good" or "fair") was a little better than that after one to four years (37 per cent either "good" or "fair"). Twenty-seven patients maintained the same adjustment at the two follow-up periods; and 24 changed. Of the latter 15 improved, and 9 deteriorated. These data suggest that hospitalized patients had a tendency to improve during the postoperative period.

TABLE 3. *Over-All Work Adjustment of 51 Hospital Patients.*

ADJUSTMENT	WORKING PERIOD			
	BEFORE ILLNESS	BEFORE OPERATION	1-4 YR. AFTER LOBOTOMY	5-10 YR. AFTER LOBOTOMY
Good	31 } 48 (94%)	1 } 7 (13%)	9 } 20 (37%)	12 } 22 (43%)
Fair	17 }	6 }	11 }	10 }
Poor	2	43	31	29
Unknown	1	1	0	0
Totals	51	51	51	51

SUMMARY AND CONCLUSIONS

A follow-up study of 86 patients who received bilateral prefrontal lobotomy (Poppen's technic) between October, 1943, and April, 1946, was undertaken to determine the effect on work capacity five to ten years after operation. All were chronically ill, psychotic patients whose progress without operation was considered hopeless. The specific focus of the study was to determine not only how much improvement followed lobotomy but also whether the improvement was sustained over the years, and especially how the postoperative level compared with the preoperative level of work capacity both before illness and during illness.

The findings indicate a vast improvement of work adjustment after operation. However, the postoperative level was considerably below the best work period — namely, before the illness had begun.

The work adjustment of patients who were in the community at the end of the follow-up period of five to ten years was considerably higher than that of the hospitalized patients, and nearly up to the level before illness. However, hospitalized patients made significant gains in work adjustment compared to the preoperative level. The postoperative adjustment of housewives was very satisfactory, considering their uniformly poor work adjustment during illness (all had been efficient housewives before illness).

Comparison of the improvement figures in a follow-up study of one to four years with those in the present five-year to ten-year survey reveals, generally, maintenance of improvement level over the years; for hospitalized cases there is a strong suggestion that the

work adjustment was better in the later than in the earlier follow-up study.

The results are encouraging as an indication for further use of the lobotomy operation. The patients operated on were those whose work potential had been crippled by the illness. The operation succeeded in releasing to a greater or lesser degree the work potential of a substantial number of these patients both in the hospital and in the community.

We are indebted to Mrs. Emily Robertson and Miss Beatrice Talbot for follow-up reports on many of the cases reported in this study and to Miss Esther Cook for assistance in the preparation of the manuscript.

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AN IMPROVED METHOD FOR THE INTRAVENOUS ADMINISTRATION OF HEPARIN*

Its Clinical Application

STANFORD WESSLER, M.D.,† AND JEROME W. FISCHBEIN, M.D.‡

BOSTON

EXTENSIVE clinical and experimental studies have demonstrated that heparin is an effective anticoagulant. Although the drug has been injected subcutaneously and intramuscularly in different menstruums with varying success[1-7] some investigators believe that it can be administered with the greatest safety and the dosage regulated most effectively when it is injected intravenously.[8,9] Its use by the intravenous route, however, has been limited by the necessity of frequent venipunctures. The present report describes a method whereby this problem has now been solved through the use of indwelling catheters attached to rubber-capped Tuohy–Borst adapters.

Method

Polyethylene tubing in 15-cm. lengths and 0.965 mm. in external diameter§ was filled with a solution of 1:1000 benzalkonium chloride (Zephiran Chloride) and immersed in sterile test tubes filled with the same germicide. The test tubes were covered with sterile corks, which were secured in position with adhesive tape. The tubing remained in the solution for a minimum of eighteen hours before use.[10]

Before the catheter was inserted the skin of the patient's forearm was thoroughly cleansed with soap and water and washed with 70 per cent isopropyl alcohol. A tourniquet was applied above the elbow, and the forearm surrounded with sterile towels. The catheter was removed aseptically from the benzalkonium solution, the outer wall washed with sterile isotonic saline solution, and the lumen flushed with the same solution by a syringe attached to a 26-gauge needle. A thin-walled, 18-gauge needle attached to a 5-cc. syringe was inserted into a superficial vein of the forearm. After the withdrawal of 5 cc. of blood for the initial clotting-time determination the tourniquet was released, the syringe detached from the needle, and 10 cm. of the catheter threaded through the needle into the vein. The catheter was held in place by counterpressure proximal to the needle, which was withdrawn from the vein, and the free end of the tubing secured to a sterile No. 610A Tuohy–Borst adapter.†† The open end of the adapter was covered with a sterile No. 11A rubber sleeve stopper‡‡ from which the sleeve was cut away before sterilization. Figure 1 shows the four pieces of equipment. The

FIGURE 1. *Photograph, Showing the No. 18 Thin-Walled Needle, 0.965-mm. Polyethylene Tubing, Tuohy–Borst Adapter (Separated into Its Constituent Parts) and Rubber Cap Used for Injection of Heparin.*

catheter and adapter were secured separately§§ with adhesive tape and covered with an ace bandage, only

*From the Medical Research Department of the Yamins Research Laboratory, Beth Israel Hospital, and the Department of Medicine, Harvard Medical School.

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†Instructor in medicine, Harvard Medical School; associate in medicine and medical research, Beth Israel Hospital.

‡Assistant in medicine, Harvard Medical School; chief resident, Medical Service, Beth Israel Hospital.

§Manufactured by Clay–Adams Company, New York City.

††Manufactured by Becton, Dickinson Company, Rutherford, New Jersey. (Becton, Dickinson rubber gasket No. 610 is recommended for use in these adapters.)

‡‡Manufactured by The West Company, Phoenixville, Pennsylvania.

§§Although in no case did the polyethylene tubing become detached from the Tuohy–Borst adapter, the catheter and adapter were secured to the arm separately to anticipate such a possibility, which might be followed by escape of the catheter into the venous circulation.

the rubber cap being left exposed. After cleansing of the outer surface of the cap with 70 per cent isopropyl alcohol 0.4 cc. of dilute heparin (10 mg. per cubic centimeter) was injected through it with a tuberculin syringe and a 26-gauge needle (Fig. 2). When the catheter had been inserted the patient was permitted unrestricted use of the extremity. Prophylactic chemotherapy was not employed.

Clotting times were determined daily at the bedside by a modified Lee–White[11] method utilizing two tubes 13 by 100 mm. in diameter and a portable, thermostatically controlled water bath at 37°C. The dosage schedule varied from eight hourly injections to a constant intravenous drip. When heparin was given intermittently, the outer surface of the rubber cap was cleansed with isopropyl alcohol before each injection. For a constant drip the needle from the bottle for intravenous injection was inserted through the cleansed, rubber-capped Tuohy–Borst adapter and secured in place; 50 to 100 mg. of dilute heparin on a six-hour schedule was given to the majority of patients in whom the dosage was determined by the amount of drug required to elevate the clotting time from 50 to 100 per cent of the control value at the end of six hours.

Blood samples for clotting times and other determinations were not obtained from the catheter. At the conclusion of therapy the catheter was simply removed from the vein; only the metallic portion of the Tuohy–Borst adapter was salvaged for subsequent use.

When necessary, smaller catheters, 0.61 mm. in external diameter, were inserted through a thin-walled 19-gauge needle; in some patients larger catheters, 1.27 mm. in external diameter, were inserted through thin-walled 16-gauge needles. Intravenous infusions including whole blood have been injected through the rubber cap on the Tuohy–Borst adapters attached to all three sizes of tubing used in this study. The 0.61-mm. catheter has the disadvantage of requiring a very slow rate for the injection of any solution; the 1.27-mm. catheter, in addition to permitting rapid infusion of blood, may be used for the withdrawal of blood samples.

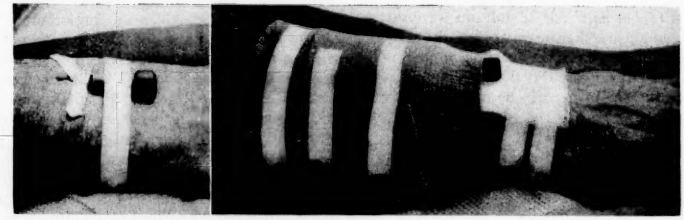

FIGURE 2. *Photograph, Showing Catheter in Place — on the Left Secured with Adhesive Tape and on the Right Covered with an Ace Bandage.*

RESULTS

Heparin was administered by catheter to 38 patients* in the Beth Israel Hospital. The drug was given therapeutically for idiopathic thrombophlebitis (6 cases) and for thromboembolism complicating heart disease (9 cases), the postoperative state (6 cases), blood dyscrasia (3 cases), cancer (2 cases), pregnancy (1 case) and the post-partum state (1 case). Heparin was also administered prophylactically to 7 patients with acute myocardial infarction, to 2 patients who were immobilized by a fractured hip and to 1 patient with peripheral arterial occlusive disease. The ages of the patients ranged from twenty-three to eighty-two years; half of them were more than sixty years of age.

The duration of therapy was decided by the patient's physician. In three quarters of the patients the catheter was in place for more than a week; it was in place for two weeks in 9, for three in 8 and for four in 2.

In all patients in whom active phlebitis was clinically evident at the onset of therapy the signs and symptoms of inflammation subsided within a few days. There were no episodes of pulmonary embolism while patients were receiving maintenance doses of heparin. In one patient a possible though improved retroperitoneal hemorrhage may have occurred, and in another definite hypersensitivity to heparin was demonstrated on two occasions.

Complications from Catheter

Since they were placed into superficial forearm veins the catheters could be readily inspected at the first indication of discomfort. Catheters were inserted in some cases into previously traumatized vessels without inducing any local reaction. All polyethylene tubes were examined when removed and were found to be clean and patent. In none of the 38 patients was ascending superficial or deep thrombophlebitis, embolism, fever or septicemia from the catheter encountered.

*One patient was hospitalized twice, and another three times for heparin therapy by catheter; each admission was counted separately for the purposes of this study.

In 9 patients the catheter was removed because of the onset of local pain and tenderness; in 5 of these there was slight associated redness of the skin. In 4 the local symptoms coincided with the termination of therapy on the fourth and ninth days.

In the remaining 5 patients with local reactions the polyethylene tubing was removed and fresh catheters inserted immediately into the vein of the opposite arm, where they functioned without difficulty for periods ranging from two to twenty-five days.

Among the 9 patients in whom catheters were removed because of local reactions cultures were obtained from the catheter tip and the inside of the rubber cap in 4 and from the catheter tip alone in 1. From among the remaining 27 catheters removed at the cessation of therapy, cultures were obtained in 8 cases from the catheter tip and in 5 from the interior of the rubber cap. All 22 cultures were sterile.

Thus, although less than a quarter of the patients experienced a slight localized reaction to the polyethylene tubing, in no case did these symptoms actually preclude the use of heparin by catheter.

Discussion

The prolonged administration of heparin and other substances by indwelling needles and catheters is not new.[12-20] With the method described above, however, heparin may be repeatedly injected into a superficial vein of the forearm for several weeks without inducing local sepsis or a systemic reaction. Heparin has thus been given to patients with acute myocardial infarction without greater inconvenience to the patient than that incurred in the use of Dicumarol controlled by a daily determination of prothrombin time.

Fulminating sepsis is, of course, a potential complication in the use of indwelling catheters; even a mild febrile response would be a serious deterrent to the use of this technic in patients with acute myocardial infarction or congestive heart failure. Although no such catastrophe occurred in this study the hazard is always present and requires that care be taken in the insertion of the catheter and in the repeated cleansing of the rubber cap before injection.

The success of the technic has been dependent on the availability of a flexible, nonreactive, small-bore catheter, the avoidance of a surgical incision, with the maintenance of asepsis in the insertion of the catheter, and the ability to introduce heparin into the system repeatedly through a rubber cap without causing infection. Both the enthusiasm of various physicians who have used the technic and the spontaneous expressions of appreciation by patients have reflected its clinical value.

The results obtained in this study should not be construed as evidence for or against the therapeutic efficacy of heparin. The number of patients in this series is small, and the dosage schedules varied appreciably. Most patients, moreover, will survive a thromboembolic episode even when not treated with an anticoagulant. All that can be claimed for this investigation is that heparin may be given intravenously with safety and with greater convenience than was previously possible.

If the virtues of the catheter technic described in this paper withstand the test of a larger clinical experience the method may also answer some of the unresolved problems in anticoagulant therapy. This would be true not only for the determination of the optimum dosage schedule of heparin but also (now that a Dicumarol preparation for intravenous injection is available[21]) for carrying out a large-scale, carefully controlled comparative study of heparin and Dicumarol in man. At present an ideal anticoagulant is not available. Since the sites of action of heparin and Dicumarol are different the results of a comparative study might afford an appropriate guide to further pharmacologic research in this important field.

The fact that intravenous therapy other than heparin can be readily administered through the catheter suggests that the technic may find further uses in critically ill patients. Recently, a patient with meningococcal meningitis and another with subacute bacterial endocarditis received massive doses of penicillin through the catheter for several days. Finally, the use of the large catheter, which passes through a thin-walled, 16-gauge needle, should facilitate the obtaining of frequent blood samples without recourse to multiple venipunctures.

Summary

A new method for the intravenous administration of heparin without repeated venipunctures is described. The technic is based on the use of inlying polyethylene catheters attached to rubber-capped Tuohy–Borst adapters. Catheters remained in veins for as long as four weeks without the development of ascending thrombophlebitis or systemic reactions. The method was used successfully in the prophylaxis and treatment of thromboembolism in 38 patients with a variety of underlying pathologic states. Patients with acute myocardial infarction were treated with heparin without greater inconvenience than that incurred with Dicumarol controlled by a daily determination of prothrombin time. The method may also be used for the administration of other types of intravenous therapy and for obtaining blood samples.

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ESOPHAGEAL VARICES WITHOUT HEMORRHAGE IN CIRRHOSIS*

A Proper Indication For Shunting Procedures

LIEUTENANT COLONEL EDDY D. PALMER, M.C., U.S.A.,† IRVING B. BRICK, M.D.,‡

AND MAJOR EDWARD J. JAHNKE, JR., M.C., U.S.A.§

WASHINGTON, D.C.

AMONG the first 50 surgical portal decompressions carried out for the treatment of esophageal varices at three university-affiliated hospitals in Washington, 18 patients were operated on in the absence of a history of hemorrhage. From the start of a local program to attack varices by definitive surgical shunt procedures, the attitude was adopted that the mere presence of esophageal varices constitutes such a dangerous threat that they should not be permitted to hemorrhage once to fill the requirements for active therapy. The indication for operation in this group was the presence of varices, not a history of hemorrhage.

Considerable opposition has been expressed to performing the major operation of portal decompression in the face of important liver disease, unless there has already been a warning hemorrhage. Some of the earlier series included scattered cases so treated because of some unusual clinical consideration, but routine attack on patients who have not bled has rarely been viewed with favor. Among others Blakemore,[1] Rousselot[2] and Gammeltoft[3] have reported cases in which shunt operations were performed in the absence of a history of hemorrhage.

Recent studies suggest that hemorrhage from esophageal varices is now the most common cause of death in massive gastrointestinal bleeding.[4] Advances in medical and surgical management of bleeding peptic ulcer are rapidly decreasing mortality from this major cause of gastrointestinal bleeding. A recent autopsy study of 673 cases of massive gastrointestinal bleeding[5] revealed that in the 310 cases in which bleeding was the primary cause of death, esophageal varices constituted the most common disease, being found in 95 cases. Of 363 patients in whom the bleeding was thought to be only contributory or incidental to the cause of death varices were found in 55. Thus, there were 150 cases of esophageal varices secondary to cirrhosis in this series.[6]

In another post-mortem study of 782 cases of portal cirrhosis Hall, Olsen and Davis[7] found 143 deaths to be due to hemorrhage from esophageal varices. In nearly half the cases esophageal varices were demonstrated despite the fact, as the authors noted, that the whole of the esophagus was not available for study in most cases.

In our experience a significant proportion of patients with cirrhosis who have died as a result of bleeding from varices died during the first hemorrhage. (This has been noted by others.) Merendino and Volwiler[8] reported in a group of 66 cases of cirrhosis that 17 per cent of patients died from the first hemorrhage due to esophageal varices. Furthermore, 20 per cent of cirrhotic patients whose varices were demonstrated without history of previous hemorrhage bled annually thereafter. The mortality from a single esophageal hemorrhage in cirrhosis is high.

Although more effective equipment for pneumatic tamponade now permits better emergency control of active bleeding the situation does not appear to have been improved much because a large proportion of patients who are saved from exsanguination succumb shortly of liver failure. In patients with liver disease bleeding, whether from esophageal varices or a duodenal ulcer, is a catastrophe. Reported statistics on mortality from bleeding in cirrhosis, grave though they are, somewhat underestimate the danger be-

*From the Gastroenterology and Vascular Surgery services, Walter Reed Army Hospital, and the Department of Medicine, Georgetown University Hospital and School of Medicine.

†Adjunct instructor in medicine, Georgetown University School of Medicine; chief, Gastroenterology Service, Medical Department, Walter Reed Army Hospital.

‡Associate professor of medicine, Georgetown University School of Medicine; attending physician and chief, Gastroenterology Clinic, Georgetown University Hospital; consultant in medicine, Gastrointestinal Service, Walter Reed Army Hospital.

§Chief, Vascular Surgery Service, Walter Reed Army Hospital.

cause a sizable proportion of patients dying in liver failure have been precipitated into failure, after days or weeks, by bleeding.

The present communication concerns three years' experience with death from portal cirrhosis, with emphasis on the mortality from first hemorrhage compared with that from surgical portal decompression. The observations were made on a group of patients who were studied intensively during a formal coordinated medical and surgical program for control of the problem of variceal hemorrhage.

Material and Methods

In the three-year study period 238 patients with histologically proved portal cirrhosis were observed.

Table 1. *Causes of 38 Deaths among 238 Patients with Histologically Proved Cirrhosis.**

Cause		No. of Deaths
No relation to cirrhosis:		9
Schistosomiasis of heart, with failure	1	
Carcinoma of pancreas	1	
Ventricular tachycardia	1	
Mesenteric thrombosis	1	
Leukemia	1	
Exsanguination from duodenal ulcer	2	
Abdominal abscess after colectomy	1	
Myocardial infarction	1	
After shunt:		5
Liver failure	4	
Acute pulmonary edema	1	
Association with cirrhosis (not shunt):		24
Hepatoma, with adrenal metastases	1	
Liver failure, without hemorrhage	8	
Exsanguination from erosive gastritis	2	
Exsanguination from varices	3	
Liver failure precipitated by bleeding varices	10	
Total		38

*Varying observation periods.

Esophageal varices were found esophagoscopically in 161. There had been hematemesis at some time during the course of illness in 89, and esophageal varices were found in 74 patients with a history of hemorrhage. Active hemorrhage from esophageal varices, gastric varices or erosive gastritis — the source of bleeding being proved in most cases by endoscopic examination during hemorrhage — was observed and treated in 59 cases. All patients with fatal variceal bleeding had been treated by tamponade with the Sengstaken tube, and some, in addition, by sclerosing injections during hemorrhage.

Fifty patients were treated by portal decompression (splenorenal shunt in 9 patients, portacaval shunt in 40, splenocaval shunt in 1 and ligation of the hepatic and splenic arteries in 1). Eighteen patients were operated on in the absence of a history of recognized bleeding from the gastrointestinal tract. The average postoperative follow-up period was eight and nine-tenths months. During this period 5 patients had hemorrhages which began two to fifteen months after operation. Control of these hemorrhages required a total of 3800 cc. of blood for transfusion.

Universal erosive gastritis is included here as a complication of the portal hypertension of cirrhosis. Although the significance of erosive gastritis in the patient with portal hypertension has not been fully elucidated, it is believed that there may well be a causal association. Certain studies on gastritis[9] have suggested that mucosal plethora and resulting hypoxia, secondary to back pressure on the stomach veins, may be responsible for exfoliation of the foveolar layer and widespread hemorrhage from the exposed mucosal vessels.

The mortality figures presented are significant so far as their distribution among the various threats to the cirrhotic patient is concerned, but, because of the varying observation periods, no conclusions can be drawn regarding life expectancy in cirrhosis.

Findings

Thirty-eight of the 238 patients died during the hospital course. All but 2 were studied at autopsy. The circumstances surrounding the deaths are outlined in Table 1. Nine deaths were from causes not associated with liver disease.

Of the 50 patients operated on 5 died during the first eighteen postoperative weeks. Two of these had never had recognized bleeding. Four of the deaths were due to postoperative liver failure, and 1 to acute cardiac failure with pulmonary edema.

There were 24 deaths from cirrhosis among the 188 patients who were not treated surgically. Esophagoscopic examination before death revealed esophageal varices in 22 of the 24 patients. There were 2 cases of hepatoma, although this was the cause of death in only 1. Liver failure was responsible in 18, having been brought on by variceal hemorrhage in 10.

Table 2. *Intervals in Clinical Course in 15 Cases of Fatal Hemorrhage Secondary to Cirrhosis.*

Interval	Patients Surviving 12 Hr. or Less	Patients Surviving 12–72 Hr.	Patients Surviving 3–7 Days	Patients Surviving 1–4 Wk.	Patients Surviving 1–6 Mo.	Patients Surviving 6–12 Mo.	Patients Surviving 1–10 Yr.
Clinical diagnosis of cirrhosis to death	1	1		1	3	6	3
Diagnosis of varices to death		2	2	3	7		
From first hemorrhage to death	3	3		1	4	1	2
From onset of current hemorrhage to death	3	5	2	3	1		

Hemorrhage secondary to the effects of cirrhosis was directly or indirectly the cause of death in 15 patients. Eight died as a result of the first hemorrhage. Five died during the second, 1 during the third, and 1 during the fifth hemorrhage.

Certain time intervals were significant in the courses of the 15 patients who died because of hemorrhage secondary to cirrhosis (Table 2). It is noted that the initial diagnosis of cirrhosis in 3 cases coincided with the first and fatal hemorrhage. Fourteen patients had varices, although in 1 the bleeding originated from erosive gastritis; in each of the 14 cases the initial search for varices revealed them. Among the 13 patients who died as a result of variceal bleeding there were 6 whose varices were first detected at the time of the fatal hemorrhage.

Discussion

However effective emergency technics for the control of active variceal bleeding may become, it is believed that only by prevention of hemorrhage can the over-all problem of mortality in cirrhosis be realistically approached. Even a hemorrhage that is quickly stopped by tamponade and managed by rapid blood replacement frequently tips the balance toward irreversible liver failure. It is considered particularly significant that only 3 patients in the present series died of exsanguination from varices, whereas 10 died of liver failure initiated by hemorrhage that had been effectively controlled. Thus, 16 per cent of all patients in the series who were treated for bleeding, whatever the source, died of liver failure.

The mortality from surgical portal decompression in this group of 50 patients during the first eighteen weeks after operations performed by different surgical teams at three hospitals was 10 per cent. In view of the fact that many of the patients were in desperate condition at the time of operation, whether or not they had bled previously, and in view of the potential danger of untreated varices in each, the surgical risk was gratifyingly small.

Because of the notable degree of individual variation among patients with portal cirrhosis and certain differences between those who were operated on and those who were not, statistical comparison between the two series is not permissible. There is no question in the minds of those charged with the care of these patients that esophageal varices in themselves constitute a proper indication for surgical efforts to reduce portal hypertension. Seven patients who died as a result of hemorrhage from varices began to bleed after they had been hospitalized, in preparation for operation, and 4 of these had never bled before. This type of experience is often more impressive than statistical arguments. Only certain unrelated, nonmedical circumstances precluded shunt surgery on all patients discovered to have varices.

Summary and Conclusion

Two hundred and thirty-eight patients with histologically proved portal cirrhosis were treated, surgical portal decompression being carried out in 50. Thirty-eight patients died — 5 after operation, 15 as a result of hemorrhage before operation could be performed, 9 of complications of cirrhosis other than hemorrhage and 9 of causes unrelated to cirrhosis. Details and implications are discussed.

The attitude that the presence of esophageal varices constitutes a proper indication for surgical portal decompression is considered justified, particularly in view of the dire results of a sizable hemorrhage in cirrhosis and the incidence of death from hemorrhage even in the first episode.

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MEDICAL PROGRESS

CURRENT CONCEPTS IN DIGITALIS THERAPY (Concluded)*

BERNARD LOWN, M.D.,† AND SAMUEL A. LEVINE, M.D.‡
BOSTON

TREATMENT

The treatment of paroxysmal atrial tachycardia with block does not differ from the methods of managing other manifestations of digitalis intoxication. Digitalis is stopped, and diuretic measures are suspended until all evidence of overdosage has disappeared. The patient's activity is restricted. To suppress toxicity either one of the salts of potassium or procaine amide (Pronestyl) is employed.

Potassium

The effectiveness of potassium salts has been pointed out. A few comments are necessary on the indications for its use, methods of administration and the hazards that attend therapy. In the ambulatory patient with digitalis overdosage the daily administration of 5.0 to 7.5 gm. of potassium chloride in divided oral doses suffices for the control of intoxication. This dose should be reduced or stopped after a therapeutic result has been achieved. When the episode of intoxication is severe 5.0 gm. of potassium chloride may be given at once. This amount, when the compound is dissolved in a chilled fruit beverage, is readily taken without gastric irritation. In patients in whom "mercurial redigitalization" develops 5.0 to 7.5 gm. will prevent intoxication when given in divided daily doses on the day of, and the day after, the diuretic. When acidosis is present the acetate or citrate salts of potassium can be used instead of the chloride. Drastic depletion of this electrolyte should be avoided in the digitalized patient with uremia. The elevated serum potassium level in these patients coexists with normal or reduced body stores.

In a number of circumstances we prefer the intravenous route for potassium administration. The advantages are that the action is prompt and results are certain, and when the electrocardiogram is continuously observed, it is safer than the oral route. Once an oral dose is ingested one is committed to that dose. When the potassium is given intravenously, however, the infusion is halted at the first evidence of peaking or tenting of the T wave,[110] and the hyperkalemia promptly disappears. For intravenous use we employ a solution containing 40 milliequiv. of potassium chloride in 500 cc. of 5 per cent glucose and water. This is given in the course of an hour and repeated if necessary until a dose of 120 milliequiv. has been given. Once a therapeutic end point has been reached, oral maintenance is started.

Should the cardiac patient in failure be maintained on small supplements of potassium? The release of myocardial potassium in failure, through the pathologic process itself as well as through the therapeutic methods now in vogue, appears to provide a rationale for such use. However, the loss of the cation in failure is in all likelihood a secondary expression of chronic lesions in intracellular physicochemical processes. The liberation of potassium is therefore a component of the pathologic impairment, and replenishment of the accrued cellular deficits depends on correction of the fundamental derangement. When the release of potassium is initiated in the cell itself, it is an oversimplification to assume that the limited permissible manipulation of the levels in the extracellular compartment would be effective against a nearly thirtyfold cellular concentration gradient. To date there is no clinical evidence that long-continued administration modifies or benefits the course of congestive heart failure. Furthermore, when appetite is normal, in the absence of renal or gastrointestinal potassium loss, the ubiquity of potassium assures an abundant supply of this cation.

Potassium supplementation is indicated only in the presence of any of the serious manifestations of digitalis overdosage or when acute loss is superposed upon the chronic underlying disease. Even under these circumstances the continued administration of large doses is hazardous. It has been stated that in the absence of anuria the body can excrete large ingested amounts so rapidly that toxic levels cannot be produced.[119,120] Other observers have found that ingested potassium may produce intoxication in patients with heart disease.[121-124] Brown, Tanner and Hecht,[124] who gave 200 milliequiv. (8 gm.) of potassium orally, reported striking differences between normal subjects and patients with congestive failure. Although the peak serum level normally occurs within two hours of ingestion, in persons with heart failure it is reached within three hours, and the level is correlated with the degree of failure. The serum level rose 26 per cent (to 5.5 milliequiv. per liter) in normal persons, 43 per cent (to 6.0 milliequiv. per liter) in patients with compensated heart failure and 67 per cent (to a value of 7.4 milliequiv. per liter) in decompensated subjects. Not only are these peaks reached later but they persist longer when the failure is uncontrolled. In the patient without heart disease such a potassium load will be excreted within four hours; in the patient with decompensation it may require twenty-four hours or longer. These differences are due to low renal clearances in patients with failure.[124]

*From the Medical Clinic, Peter Bent Brigham Hospital, and the Department of Medicine, Harvard Medical School.
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†Formerly, assistant in medicine, Peter Bent Brigham Hospital.
‡Clinical professor of medicine, Harvard Medical School; physician, Peter Bent Brigham Hospital.

In our experience the ingestion of even a lesser single dose of potassium may induce severe hyperkalemia. This is especially true in elderly cardiac patients. Although they have normal concentrating capacities and urea clearances they handle potassium as though afflicted with advanced renal impairment.

Since the hazards are real and the benefits are dubious routine administration of potassium should be restricted to cases in which its use is clearly indicated. It should be given in moderate doses with electrocardiographic supervision for the limited period of need.

Procaine Amide (Pronestyl)

A new agent, the amide analogue of procaine, is proving effective in controlling the arrythmias due to overdoses of digitalis. Procaine amide, unlike procaine, is stable within the body and in therapeutic doses is devoid of convulsant action. To date, procaine amide is the most effective agent in protecting dogs under cyclopropane anesthesia from the arrhythmias caused by epinephrine.[125] perimentally studied by Lown and Crocker,[131] who found that in dogs procaine amide was promptly effective in stopping ventricular tachycardias produced by an overdose of acetyl strophanthidin. Such arrhythmias usually lasted from three to fifteen minutes. When 100 mg. of procaine amide was given intravenously the tachycardia was abolished within a minute, without further recurrence of the tachycardia or ventricular extrasystoles. These investigators also demonstrated that the administration of this drug before digitalization raised the threshold of the myocardium to digitalis (Table 6). The protection was similar to that afforded by potassium.[131]

Procaine amide is also effective in patients with abnormal rhythms produced by acetyl strophanthidin or other digitalis bodies. We were successful in restoring sinus rhythm in 5 of 7 cases of paroxysmal atrial tachycardia with block. Varying digitalis preparations were implicated. In 1 of the 2 failures the episode was of the idiopathic type. Potassium salts given to the point of hyperkalemia were also ineffective. The stages in resolution of paroxysmal atrial tachycardia with block with procaine amide are iden-

TABLE 6. *Comparison of Dosage of Acetyl Strophanthidin Required to Produce Ventricular Tachycardia in 7 Dogs with and without Procaine Amide Treatment.**

GROUP	ADMINISTRATION OF ACETYL STROPHANTHIDIN	NO. OF DIGITALIZATIONS	AMOUNT OF ACETYL STROPHANTHIDIN	PROPORTION OF CONTROL AMOUNT
			mg.	%
Control: A	—	38	0.95	—
Procaine amide: B	Immediately after 100 mg. intravenously	45	1.69	178
C	2 hr. after procaine amide	8	1.30	137
D	Immediately after toxicity abolished with procaine amide	10	0.62	65

*Note protective action and increased tolerance to acetyl strophanthidin induced by procaine amide.

Procaine amide is completely and rapidly absorbed from the intestinal tract and can thus be given either orally or parenterally. Peak levels after an oral dose are achieved in about ninety minutes.[126] After intravenous administration effects as assessed by the prolongation of the QT interval are noted within four minutes.[127] The drug is slowly metabolized and excreted. Plasma levels decline approximately 15 per cent an hour. Roughly 60 per cent is excreted unchanged in the urine. On repeated oral doses a plateau is reached after thirty-six to forty-eight hours.[126] The electrocardiographic effects which resemble those of procaine[128] or quinidine[129] consist of PR and QT prolongation, T-wave flattening and QRS widening.

Many of the arrhythmias successfully treated with procaine amide have been precipitated by an overdose of digitalis.[127,130] The specific interaction between procaine amide and toxic doses of digitalis was ex- tical to the sequence that follows potassium administration. When both agents are utilized the 1:1 response phase is abbreviated, and sinus rhythm is rapidly established. The following schedule is recommended: a dose of 5 gm. of potassium chloride is given by mouth. If within an hour there is no reversion procaine amide is given intravenously. The pretreatment with potassium both facilitates and diminishes the dose of procaine amide necessary for reversion.

When the intravenous route is utilized 50 mg. is given every two minutes with blood-pressure determinations before each injection. If the pressure begins to fall the interval between doses is increased to five or ten minutes. If, however, the pressure continues to decline the administration of procaine amide is discontinued. In the majority of cases of digitalis intoxication the oral route is preferred. After an initial dose of 1.0 gm., 0.5 gm. is given every three to

six hours. Smaller doses may be equally effective in the presence of renal impairment.[132] Dosage is adjusted empirically to the patient's requirements. Prolonged usage is apparently not associated with ill effects. We have successfully prevented the occurrence of ventricular tachycardia in 1 patient by the daily oral administration of 3.0 gm.; he has been receiving procaine amide for two years without evident harm.

Procaine amide is an important adjunct to the management of the arrhythmias due to an overdose of digitalis. It resembles potassium in its effect. Its action may be due to alteration of membrane permeability, facilitating the entry of potassium into the cell.

A Digitalis Tolerance Test

The problem of how to digitalize, how much drug to use and when to use it dates to Withering. The studies of Eggleston[133] provided a rational approach to digitalization and indicated that the quantity of drug required is a function of body weight. In practice, however, the high incidence of both overdigitalization and underdigitalization, when the weight formula was rigidly applied, led to the recognition that the dose of digitalis for maximum therapeutic effect cannot be predicted in advance but must be derived for each patient in the trial-and-error process of digitalization. Although empiric dosage determinations suffice for the majority there are increasing numbers of cases in which even fractional digitalization is fraught with danger.

At times the very question of administering more digitalis is uncertain. Will additional digitalis aggravate or improve failure? Are the symptoms of nausea and vomiting due to overdosage or to advanced decompensation? Are ventricular premature beats indexes of toxicity or evidence of myocardial anoxia from increasing failure? Is an episode of paroxysmal rapid heart action an expression of too much digitalis or an indication for more? These and similar questions frequently confound the clinician and conduce to indecision and contradictory half measures. The following experience illustrates one of the problems mentioned:

M.O., a 36-year-old woman, manifested ventricular tachycardia and peripheral vascular collapse 48 hours after a mitral valvuloplasty. She had been on maintenance digitalis therapy, and her previous rhythm had been that of atrial fibrillation. The cause of the tachycardia was uncertain. She was treated with large doses of procaine amide, followed by intravenous injection of quinidine and potassium chloride, without reversion. These measures further aggravated the ventricular tachycardia by accelerating the rate, increasing intraventricular block and establishing multifocal sites for the arrhythmia (Fig. 14). The ineffectiveness of both procaine amide and potassium indicated that digitalis was not a factor in the ventricular tachycardia. It was suggested that decompensation with impaired coronary perfusion and resulting myocardial anoxia stimulated an irritable myocardial focus produced by the trauma of valvuloplasty and thus precipitated the ectopic rhythm. If the initiating factor was increasing failure, digitalis, by restoring compensation, would prove effective where other measures failed. She was therefore given small amounts of ouabain (0.1 mg.) every 30 minutes (Fig. 14). After a dose of 0.3 mg. atrial fibrillation emerged as the dominant rhythm. After another 0.3 mg. all evidence of ventricular irritability had disappeared. The patient, however, died 24 hours later.

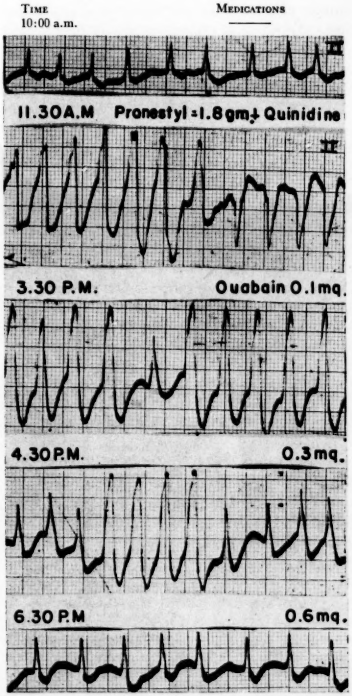

Figure 14. *Ventricular Tachycardia Following Mitral Valvuloplasty in a Patient on Maintenance Digitalis. Procaine amide, quinidine and potassium chloride were administered intravenously without effect. Ouabain caused reversion to atrial fibrillation.*

Ventricular tachycardia is regarded as one condition in which digitalis is absolutely contraindicated. In this patient digitalis was effective in reversing the arrhythmia. If there had been a method for determining the digitalis status and rapidly effecting digitalization, death might have been prevented.

We have seen a number of similar cases in which, in retrospect, it seemed likely that if digitalis had been given promptly and in adequate dosage, the irreversible failure or tachycardia might have been

controlled. The converse has also been our experience: digitalis was given, with harmful consequences, and in retrospect it appeared that the patient's deterioration in the first place was due to overdosage. The problem is therefore one of evolving a method for determining rapidly and without excessive hazard the patient's digitalis status and requirements. We have devised a test that provides such information.

Acetyl Strophanthidin Tolerance Test

Principle. The purpose of the test is to ascertain the degree of digitalization and myocardial sensitivity to digitalis in patients whose digitalis status is in doubt. Since there is currently no clinical method for determining cardiac susceptibility to digitalis, except through the act of digitalization, such a procedure is employed. Acetyl strophanthidin, the agent used, has a short latency; peak effect is achieved in the course of several minutes, and dissipation is rapid. The amount of drug necessary for a therapeutic or toxic end point determines whether digitalis is to be used and the approximate dosage for optimal effect.

Agent. Acetyl strophanthidin is an ultrarapid-acting synthetic ester of the cardiac aglycone, strophanthidin. In tests on human subjects acetyl strophanthidin has been found to be a potent digitalis-like agent.[134-136] It is much more rapid in effect and dissipation than ouabain, generally conceded as the most rapid acting of all cardiac glycosides.[135,137-140] A comparison of some of the clinical properties of the two drugs is presented in Table 7. The earliest effect of acetyl

TABLE 7. *Comparison of Speed of Action and Dissipation of Ouabain and Acetyl Strophanthidin.**

DRUG	EARLIEST EFFECT	PEAK ACTION	PERSISTENCE OF EFFECT	DURATION OF TOXICITY
	min.	*min.*		
Ouabain	5–20	60–120	3 hr.–5 days	Several hr.
Acetyl strophanthidin	½–5	12	2 hr.	30 min.

*Note that action of acetyl strophanthidin is more rapid and more transient than that of ouabain.

strophanthidin, during 154 trials in 125 patients, occurred within one to five minutes, with an average of three and a half minutes.[136] In a number of patients we have observed an effect as early as thirty seconds after administration.[140] When the drug is given over a five-minute period 70 per cent of the maximum action, as gauged by the slowing of the ventricular rate of atrial fibrillation, was evident at the end of injection.[135] The effect persisted for about an hour, and in no case was it present after four hours.[136] In dogs it is possible to digitalize at two-hour intervals without evidence of cumulation.[140] Toxicity lasts for about thirty minutes. Enselberg and his coworkers,[136] who have had the most extensive clinical experience with this agent, reported toxicity in a quarter of the trials. However, they gave the whole digitalizing dose at once. In experiments on both dogs and human beings acetyl strophanthidin is about half as potent as ouabain—that is, 0.1 mg. of ouabain is equivalent to 0.2 mg. of acetyl strophanthidin.[135,140]

Animal experiments. A number of problems remained to be solved before the application of acetyl strophanthidin as a testing agent in man: the development of methods for eliminating or controlling toxicity; determination of whether the action of acetyl strophanthidin on the heart is quantitatively additive to that of any other digitalis preparation already in the body—the critical point of the tolerance test; and ascertaining of whether the state of prior digitalization modifies the toxic pattern of acetyl strophanthidin either in quality or in duration.

These problems were studied in dogs. It was found that administration of small increments of acetyl strophanthidin at brief intervals produced significant

TABLE 8. *Summary of Ouabain Assay with Acetyl Strophanthidin in 4 Dogs.*

NO. OF ASSAYS	DEVIATION IN PREDICTED DOSE OF OUABAIN FROM AMOUNT GIVEN	DURATION OF TOXICITY	
		ACETYL STROPHANTHIDIN	ACETYL STROPHANTHIDIN AND OUABAIN
	%	*min.*	*min.*
20	13	6	8

slowing or rare extrasystoles without serious toxicity. If toxicity was precipitated intravenous injection of procaine amide was also immediately effective in abolishing the arrhythmias.[131] When ouabain was present in the body the additional administration of acetyl strophanthidin to the point of toxicity did not alter the toxic pattern or prolong its duration (Table 8).

The possibility of determining the quantity of digitalis in the body by means of acetyl strophanthidin was tested in dogs. When acetyl strophanthidin is given at two-hour intervals the dose remains constant for the production of ventricular tachycardia. If, however, a dose of ouabain is administered between successive doses of acetyl strophanthidin, there is a reduction in the dose of acetyl strophanthidin equivalent to the amount of ouabain given. A typical example, one of a group of identical experiments, is presented in Figure 15. Four doses of acetyl strophanthidin were given to the same toxic end point two hours apart. The first time the dose required was slightly in excess of 2.0 mg. When the acetyl strophanthidin was again given, but this time preceded by 0.5 mg. of ouabain administered an hour earlier, it required only 50 per cent of the first digitalizing dose to produce ventricular tachycardia. Each time ouabain was injected the reduction in the dose of acetyl strophanthidin for toxicity was nearly equivalent to the

amount of ouabain administered. The over-all results in 20 similar assays are shown in Table 8. The average deviation in the predicted amount of ouabain from

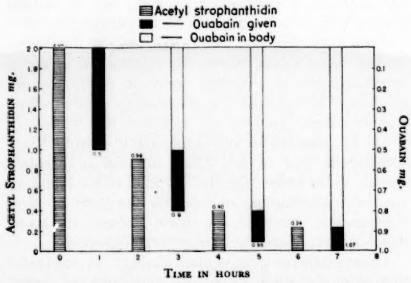

FIGURE 15. *Declining Doses of Acetyl Strophanthidin for the Production of Ventricular Tachycardia When Increasing Amounts of Ouabain Accumulate in the Body.*

the amount actually given was 13 per cent. This was the same as the magnitude of deviation in successive digitalizations with acetyl strophanthidin when no ouabain was given. This method permits accurate appraisal of the quantity of a digitalis preparation present within the body. With these preliminary observations it was considered justified to employ the acetyl strophanthidin tolerance test in man.

Clinical Studies

Material and methods. The test was employed in patients with congestive heart failure whose digitalis status was in doubt or in whom myocardial sensitivity to the drug was believed to be increased. To date 20 tests have been carried out in 18 patients, the majority of whom were critically or terminally ill.[140]

Technic. The procedure of the test was quite simple. Two ampoules, each containing 0.6 mg. of acetyl strophanthidin, were diluted to 20 cc. in 5 per cent glucose and water. If the patient to be tested had received little or no digitalis 0.3 mg. of acetyl strophanthidin (or 5 cc. of the dilution) was given intravenously every five minutes until the achievement of either a therapeutic effect or a mild toxic response. In the presence of possible digitalis intoxication the schedule was modified. Either the interval between doses was increased to ten minutes or the initial two increments of acetyl strophanthidin were reduced to 0.15 mg. In the presence of an arrhythmia that was most probably due to digitalis potassium was first given and, if ineffective, followed by a tolerance test. The electrocardiogram was continuously observed during the test. One-minute strips were taken before each injection. With the onset of evidence of intoxication, nausea excepted, the test was stopped. If the toxic pattern consisted of ventricular premature beats small amounts of procaine amide were given intravenously until all extrasystoles had disappeared.

Interpretation. Interpretation of the test was based on the amount of acetyl strophanthidin required and on the patient's qualitative response. If toxicity developed after the first injection of 0.15 mg. or 0.3 mg. overdosage was presumed to be present, and no further digitalis was administered. If toxicity ensued after 0.6 mg. without the intervention of any therapeutic effect the patient was regarded as adequately digitalized. When therapeutic action occurred after 0.6 mg. or 0.9 mg. fractional doses of any one of the commonly used digitalis preparations were given until the same effect had been achieved. If the patient required 1.2 mg. or more full digitalization was carried out.

Results. In 18 of the 20 tolerance tests the information provided served as an immediate and accurate guide to further therapy. The results were uncertain in 1, and another patient died soon after the completion of a test. Twelve of the tests indicated that the patients could profit from more digitalis either in full or partial dosage, and seven of the tests were interpreted as contraindicating digitalis (Table 9). Al-

TABLE 9. *Results of 20 Assays in 18 Patients.*

Digitalis Required	No. of Assays	Digitalis Not Required	No. of Assays	Effect Uncertain
Full digitalization	8	Toxicity	3	
Partial digitalization	4	Full digitalization	2	
		Increased sensitivity	1	
		No therapeutic effect	1	
Totals	12		7	1*

*Patient exhibited bidirectional ventricular tachycardia before test.

though the findings of the tolerance test frequently contraindicated clinical impressions, the patient's subsequent courses corroborated the conclusions of the test in all instances.

Patients requiring digitalis. Of the 12 patients requiring digitalis 9 were on maintenance doses. Two had received no digitalis and it was uncertain whether 1 had taken any. Some of these cases are reported below.

C.C., a 54-year-old man with hypertensive cardiovascular and coronary-artery disease, had sustained 2 episodes of myocardial infarction before entering the hospital. After his 2d infarct right-sided and left-sided failure developed. He was therefore digitalized with digitalis leaf and maintained on 0.1 gm. and 0.2 gm. on alternate days. He also required weekly mercurial injection. For 1 month before hospitalization his digitalis status was uncertain. He had nausea, vomiting, ventricular premature beats and marked bradycardia, with heart block as well as sinus tachycardia. Digitalis was stopped, started, increased in dosage and then discontinued to be restarted again when his congestive heart failure became aggravated. He was switched to digitoxin and then to Digoxin without benefit. At the time of the tolerance test he was nauseated, vomited and exhibited multifocal ventricular premature beats. He was receiving 0.5 mg. of Digoxin daily. He was given 0.3 mg. of acetyl strophanthidin every 10 minutes. After 1.2 mg. he began to vomit again. At this point the heart rate had decreased

about 20 per cent, and the extrasystoles had disappeared (Fig. 16). The test was interpreted to denote that he

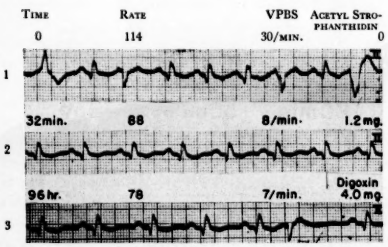

FIGURE 16. *Tracings in C.C.*

The acetyl strophanthidin tolerance test indicated the need of full digitalization. When this had been accomplished failure was controlled, and extrasystoles diminished.

needed full digitalization. Within the next 96 hours, he received 4.0 mg. of Digoxin. This dose controlled his failure and further slowed his rate.

Without an acetyl strophanthidin tolerance test there appeared to be no way of determining this patient's digitalis needs. The nausea, vomiting and multifocal ventricular extrasystoles suggested overdosage and urged discontinuation of the drug. The unfavorable course, the increasing pulmonary and hepatic congestion and the background of myocardial infarction intimated that a possible basis for the clinical picture was increasing failure that might be remedied by more digitalis. Even though it was concluded that he needed more digitalis, the amount required would have remained uncertain and inadequate dosage might have vitiated effective action. The therapy during the month before hospitalization was characterized by vacillation between half measures and resulted in sapping of the patient's well-being and the physician's morale.

G.G., a 49-year-old man, had syphilitic aortic insufficiency. Twelve hours before admission dizziness, marked weakness, dyspnea and palpitation developed. A supraventricular tachycardia with a rate of 180 was found to be the cause of his symptoms. Sedation, carotid-sinus pressure and prostigmine were ineffective. Pulmonary edema began to develop and rapid digitalization was indicated. Since he had been taking digitalis irregularly, acetyl strophanthidin was used. He received 0.3 mg. every 5 minutes (Fig. 17). After 1.2 mg. he experienced nausea and vomiting. Since the tachycardia continued another 0.3 mg. was given. The atrial rate thereupon slowed, and there was an abrupt reversion to sinus rhythm. At this point he exhibited 2d-degree heart block, a changing pacemaker and ventricular premature beats. Intravenous injection of procaine amide in a dose of 300 mg. controlled these manifestations.

The tolerance test is not only a diagnostic procedure but also, in some cases, a therapeutic measure. Reversion of supraventricular tachycardias requires a digitalis preparation that has short latency, prompt peak action and rapid dissipation of toxicity; acetyl strophanthidin has these properties. Enselberg and his co-workers[136] caused 11 of 12 cases of supraventricular tachycardia to revert to sinus rhythm with acetyl strophanthidin, the majority within one to three minutes. In 1 refractory case the patient had "auricular tachycardia with high degree atrioventricular block."

In patient G.G. the onset and progress of pulmonary edema due to the rapid heart action demanded prompt digitalization. Since he had received some digitalis the amount to be given was uncertain. If

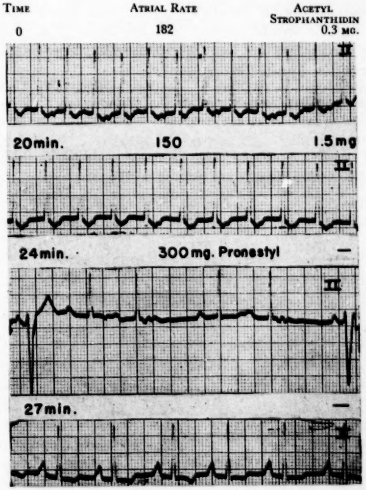

FIGURE 17. *Electrocardiograms in G.G., Showing that Acetyl Strophanthidin Caused the Arrhythmia to Revert to Sinus Rhythm.*

ouabain had been used the equivalent dosage would have been 0.7 mg. to 0.8 mg. This dose could not have been administered with safety in less than two or three hours, and the longer period might have jeopardized the patient's life. The problem with some cases of supraventricular tachycardia is that a toxic amount of digitalis may be necessary for reversion, as in this patient. When toxicity develops before the arrhythmia is controlled it is hazardous to continue with more digitalis. Furthermore, the toxic reaction may be more serious and prolonged than the initial arrhythmia. These difficulties are either lacking or at a minimum when acetyl strophanthidin is used.

A.N. had severe right-sided and left-sided failure, a nodal tachycardia and ventricular premature beats at the time of hospitalization for mitral-valve surgery. After digitalis had been stopped the rhythm reverted to atrial fibrillation, but he continued to have premature beats and runs of regular ventricular rhythm. His condition had by this time deteriorated, and he was regarded as terminally ill. The consensus was that he was still intoxicated with digitalis. A tolerance test was carried out. Acetyl strophanthidin was given in a 0.3-mg. dose every 10 minutes (Fig. 18). After 48 minutes, when he had received a total dose of 1.8 mg., the rate had dropped to 105. The interpretation was that he required full digitalization. He was given immedi-

ately 1.5 mg. of Digoxin intravenously, followed by 0.5 mg. orally every 6 hours. Within 24 hours he received 3.5 mg. of Digoxin. His rate remained at 100. He became responsive to mercurial diuretics and within 2 weeks lost 14 kg. of weight. Compensation was restored, and a valvuloplasty could be performed.

In this patient clinical judgment was contradicted by the results of the tolerance test. No basis existed before the test for assuming that he required full digitalization. All therapeutic measures were ineffective in controlling his advancing failure, and it was expected that he would die within a few days. The proper use of digitalis not only improved his status but also permitted him to be operated on.

After the valvuloplasty he exhibited marked sensitivity to both overdigitalization and digitalis inadequacy. In both

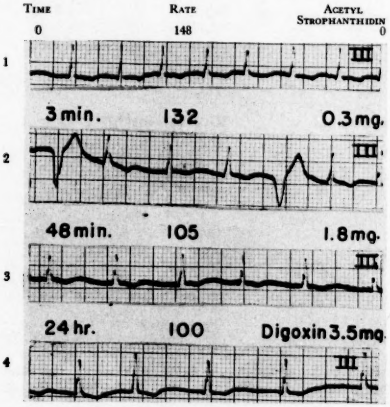

FIGURE 18. *Electrocardiograms in A.N.*
Acetyl strophanthidin tolerance test indicated the need for full digitalization. When this was achieved failure was controlled.

circumstances a nodal tachycardia, with aggravation of the failure, developed. Immediately after operation he had a nodal tachycardia, which was due to overdosage and was corrected by the intravenous administration of potassium. When digitalis was stopped for a few days a nodal tachycardia again developed. Because electrocardiographically it appeared to be identical to the previous arrhythmia, notwithstanding the fact that he was off digitalis, the tachycardia was again ascribed to digitalis intoxication. The intravenous administration of 35 milliequiv. of potassium chloride was ineffective (Fig. 19). An acetyl tolerance test was carried out. Within 8 minutes after a total dose of 0.6 mg. the rate dropped precipitously from 136 to 64 per minute, and was maintained there by 1 mg. of Digoxin.

In this case identical electrocardiographic arrhythmias were caused by diametrically opposite conditions, and a correct appraisal required the use of both potassium and acetyl strophanthidin.

G.D., a 32-year-old woman with rheumatic mitral stenosis and atrial fibrillation, entered the hospital as an emergency admission to the surgical service. Four hours earlier she had experienced sudden, severe pain and numbness in the right leg. She was anxious, sweating profusely and complaining of dyspnea, palpitation and pain in the right limb, which was cold from the knee down; there was cyanosis of the foot, and the popliteal pulse was absent. The immedi-

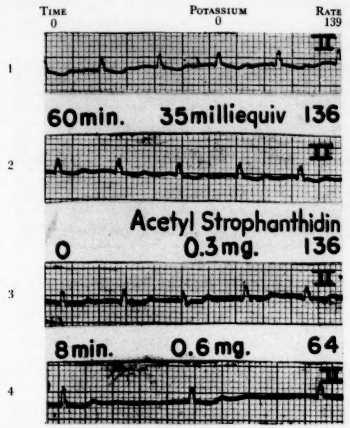

FIGURE 19. *Nodal Tachycardia after Mitral Valvuloplasty in A.N.—Not Helped by Potassium.*
Acetyl strophanthidin tolerance test indicated the need for more digitalis.

ate performance of an embolectomy was indicated. Surgery, however, was not advised until the rapid heart rate, which ranged from 160 to 175, was slowed. She had been on maintenance digitalis for 3 years; 2 days before hospitalization her daily digitoxin dose was increased to 0.2 mg. Since she had some ventricular premature beats, a tendency to regularity in the fibrillation and what appeared to be P waves in Lead V_1 the possibility of digitalis overdosage was considered. An acetyl strophanthidin tolerance test was carried out. She received 0.3 mg. of the drug every 10 minutes (Fig. 20). After 0.6 mg. there was a material

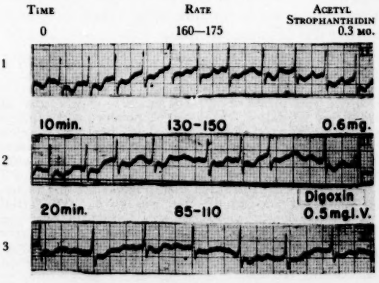

FIGURE 20. *Electrocardiograms in G.R.*
Acetyl tolerance test showed the need for additional digitalis.

reduction in heart rate, and she experienced nausea. She was then given 0.5 mg. of Digoxin intravenously and taken to the operating room. Her rate did not rise over 100, and a successful embolectomy was performed.

In this patient the test again provided diagnostic information and proved of therapeutic value. The

rapid heart rate was precipitated by the peripheral embolization. The daily digitalis intake, sufficient for usual needs, was inadequate in this emergency. A small increment of drug controlled the tachycardia; thereafter, the digitalis needs receded to the former level of requirement. The special value of acetyl strophanthidin in this case was the rapidity of its effective action. Within twenty minutes the patient was prepared for operation.

Digitalis not indicated. In 7 patients the tolerance test was interpreted to mean that no digitalis was required (Table 9). In 3 it indicated that the patients were suffering from digitalis intoxication. This fact was not recognized on clinical grounds alone. If a longer-acting digitalis preparation had been given as planned, death from overdosage would have resulted. One case illustrates this group.

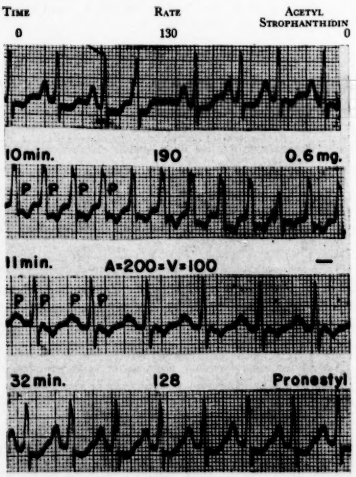

FIGURE 21. *Electrocardiograms in R.T. Tolerance test induced paroxysmal atrial tachycardia with block, which was controlled with procaine amide. Digitalis was not considered indicated.*

R.T.,* a 27-year-old woman with isolated mitral stenosis and recurrent bouts of acute pulmonary edema, was receiving digitalis leaf, 0.1 gm. and 0.2 gm. on alternate days. After cardiac catheterization an episode of intractable pulmonary edema developed. Phlebotomy, tourniquets, oxygen, morphine, aminophylline and other measures were ineffective. Her heart rate was 130, with frequent atrial and ventricular premature beats. After the persistence of the pulmonary edema for 3 hours the use of digitalis was considered. An acetyl tolerance test was carried out. After the first 0.3 mg. there was a change in atrial pacemaker and a slight acceleration of rate. This was not noted at the time and another 0.3 mg. was given. Paroxysmal atrial tachycardia with block resulted. This reverted to a sinus tachycardia on the intravenous injection of 750 mg. of procaine amide (Fig. 21). It was concluded that the patient had had adequate digitalis and was bordering on intoxication. The sinus tachycardia was the result of failure and could not be controlled until the failure was abolished. She was given much sedation and morphine. Within a few hours the pulmonary edema began to abate, and a reduction in rate followed. She recovered, and some days later a mitral valvuloplasty restored her nearly to full activity.

A long-acting digitalis preparation might have prolonged the toxic response, and the pulmonary edema might have impeded or prevented restoration of compensation. Within a few minutes, through use of the tolerance test, it was evident that digitalis was not to be employed.

Uncertain and unfavorable results. In 1 patient the results were uncertain. The patient came in with left-sided failure and atrial fibrillation with a ventricular rate of 160. A dose of 1.6 mg. of Cedilanid intravenously did not slow the rate. The next day he experienced a cerebrovascular accident, with frequent grand-mal seizures. During the convulsion he had bidirectional ventricular tachycardia. To ascertain whether digitalis would slow the rapid fibrillation acetyl strophanthidin was given. However, the sporadic recurrence of bidirectional ventricular tachycardia prevented judgment whether the patient was underdigitalized or overdigitalized.

Acetyl strophanthidin accelerated the death of another patient, who was terminally ill with left-sided and right-sided failure unresponsive to all measures. While she was on maintenance digitalis an episode of rapid heart action interpreted as supraventricular tachycardia with left-bundle-branch block developed. The arrhythmia was terminated with procaine amide. Two days later, because of a ventricular rate of 120, it was decided to carry out a tolerance test. Within thirty seconds of the injection of 0.3 mg. of acetyl strophanthidin multifocal ventricular premature beats developed, and within a minute progressed to ventricular tachycardia. It was now evident that the previous arrhythmia had also been an episode of ventricular tachycardia. The cerebral symptoms, the anorexia and the extreme regularity of the atrial fibrillation appeared as the obvious stigmas of advanced digitalis intoxication. She was therefore given 200 mg. of procaine amide intravenously, with reversion to rapid and regular fibrillation. However, about nine minutes after the acetyl strophanthidin and six minutes after the procaine amide she grew cyanotic, with gasping respiration. The electrocardiogram revealed ventricular fibrillation.

Whether the terminal episode was due to acetyl strophanthidin, procaine amide or other factors will never be established with finality. Deaths after small intravenous doses of procaine amide have been reported.[130] The chain of circumstances in this patient demands that her death be ascribed to the tolerance test. It seems to us that a number of errors of judgment were committed in this case. In the first place the initial arrhythmia was not recognized as ventricular tachycardia. Secondly, the symptoms, as well as

*Reported through the courtesy of Dr. Louis Dexter.

the regular and rapid ventricular response in a patient with atrial fibrillation, should have indicated that she was still seriously intoxicated at the time of the test. In the presence of overt digitalis intoxication the administration of potassium is the procedure of choice. Without the tolerance test it is likely that the patient would have received more digitalis and probably the outcome would have been identical.

Discussion

The amelioration of disease by therapeutic means that alter internal biologic processes carries with it the constant possibility of injury. In deciding the justification of any new drug or procedure one must weigh the benefits to be accrued against the hazards to be encountered in relation to the seriousness of the underlying problem. In the treatment of advanced cardiac disease situations in which the patient's well-being depends on an accurate appraisal of digitalis needs frequently arise. No method has been available to date for this purpose. The test outlined above provides an indication whether digitalis can be safely given or must be withheld. Our experience has impressed us with both its great value and its potential danger. Its use is justified only in the most carefully selected cases. There must be real doubt concerning the digitalis requirements that cannot be resolved by simpler clinical means before the test is employed.

Conclusions

In recent years a great deal of new information has accumulated on the mode of action of digitalis and on its benefits and dangers in the treatment of congestive heart failure.

Of clinical importance is the recognition of the existing relation between digitalis and potassium. Depletion of body potassium lowers the myocardial threshold to the toxic action of digitalis. This finding is especially significant today when the management of heart failure is based in large measure on the manipulation of electrolytes that is attended by loss of body potassium. It is likely that the altered treatment of heart failure contributes to the rising incidence of digitalis intoxication.

Digitalis overdosage affects atria as well as ventricles. In the former it gives rise to a specific arrhythmia, paroxysmal tachycardia with block, which is readily controlled by the salts of potassium or procaine amide.

The variation of the response of the heart to digitalis in any one patient, the frequency of conditions in which underdigitalization and overdigitalization are indistinguishable and the similarity of paroxysmal atrial tachycardia with block to many nondigitalis-induced arrhythmias has made necessary a procedure for providing information on the digitalis status of the cardiac patient. A digitalis tolerance test that provides such data has been devised. It is based on a biologic assay of myocardial sensitivity to an ultrarapid-acting, digitalis-like drug, acetyl strophanthidin.

The newer methodologies employed promise a further extension of knowledge concerning the mechanism of heart failure and the mode of action of digitalis.

The introductory words of Withering to his treatise, which ushered in a new era in the care of patients with congestive heart failure, form an apt conclusion to our study:

> These remarks consist partly of matter of fact and partly of opinion. The former will be permanent; the latter must vary with the detection of error or improvement of knowledge. I hazard them with diffidence and hope they will be examined with candor not by contrast with other opinions but by an attentive comparison of the phenomena of disease.

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MEDICAL INTELLIGENCE

SO-CALLED "POSTERIOR MEDIASTINAL GOITER"*

Presentation of a Simplified Surgical Approach

IRVING L. LICHTENSTEIN, M.D.,†
MARCUS RABWIN, M.D.,‡ AND
HENRY L. JAFFE, M.D.§

LOS ANGELES

EVERY freshman medical student approaches his final examination in anatomy with apprehension. Probably, it is the multi-layered cervical fascia that presents the real challenge to his confidence. The neck is divided into superficial and deep compartments by connective-tissue planes. The deep cervical fascia itself is subdivided into the superficial, the middle or pretracheal and the deep or prevertebral layers. Students of anatomy will recall that a layer of fascia envelops the thyroid gland. This capsule, made up of the middle strata of the deep cervical fascia, stretches easily when its contents enlarge.

With increase in size of the thyroid gland displacement of surrounding structures occurs in the line of least resistance. Since the lower poles of the organ rest unopposed over the superior thoracic aperture it is surprising that mediastinal goiter is not more common. The sternocleidomastoid, omohyoid, sternohyoid and sternothyroid muscles are located anterior to the gland and, with the exception of the omohyoid muscles, all attach to the sternum. Therefore, after the initial enlargement of the gland anteriorly and laterally, the pretracheal muscles cease to yield, and any further growth occurs downward and posterior to the sternum, into the mediastinum. The enlarging thyroid gland may also extend, in rare cases, in the fascial planes into the retroesophageal area in the neck.

Surgical removal of all intrathoracic goiter is indicated because of the ever-present danger of tracheal obstruction. Hemorrhage and cancer have been estimated to have a higher incidence in substernal adenomas than in the cervical variety. If bleeding suddenly occurs, enlargement of the tumefaction takes place, and complete, sudden respiratory obstruction may follow.

Retroesophageal goiter in the neck is rare. Still more unusual is the presence of a posterior mediastinal thyroid gland; a review of the world literature in 1950 revealed only 16 cases. Thirteen of these were in women, and 13 were located on the right side. These tumors descended behind the subclavian vessels to the right of the trachea and the esophagus and between the ascending aorta and vena cava anteriorly and the cross branch of the vena azygos posteriorly. Because of the apparently posterior mediastinal location of these masses the preoperative diagnosis was almost invariably some form of nerve-tissue tumor. In the past all such growths were attacked through a transpleural incision or by means of a posterior mediastinotomy.

The blood supply to the superior mediastinal goiter, unlike that of other intrathoracic masses, arises in the neck. Through a cervical approach, therefore, hemostasis may be obtained, and a relatively bloodless dissection of the mediastinal gland performed. This has the distinct advantage over the thoracotomy approaches of being less shocking and taking considerably less time. However, the approach through the neck is completely inadequate for nonthyroid intrathoracic tumors, since their blood supply does not arise from the cervical area. With poor exposure and little control of hemostasis in such cases a mediastinotomy invariably proves necessary.

In the case reported below, it was possible, by the use of radioactive iodine, to make a preoperative diagnosis of posterior mediastinal goiter, despite the rarity of this condition. The patient was subsequently spared a formidable procedure, and cure was accomplished by means of a relatively simple operation.

CASE REPORT

A.Z. (C. L. H. 65806), a 56-year-old woman, was admitted to the Surgical Division of the Cedars of Lebanon Clinic, for study of a substernal goiter of 4 years' duration. This was associated with hypertension. There was a past history of multiple surgical procedures, including cholecystectomy, appendectomy, several nephropexies and repairs of 2 incisional hernias. Three years after the goiter had been discovered, the patient was informed of the finding. Dysphagia, choking and nausea and vomiting promptly developed. Because of the number of operations she had already undergone and because of her intense desire for further surgical procedures, a masochistic tendency was suspected and further operation was, at first, discouraged.

Physical examination failed to reveal a palpable thyroid gland in the neck. However, there was a tumefaction in the suprasternal notch, with little or no motion on deglutition. Cardiomegaly and a Grade 2 systolic murmur over the apex were noted. The blood pressure was 280/150. Abdominal and flank scars were present from the multiple surgical procedures.

Study of the cardiovascular system was not remarkable. Under sedation the blood pressure fell to 170/84. The benzodioxane test was negative, and an electrocardiogram showed only strain and hypertrophy of the left ventricle. X-ray examination of the chest demonstrated a mass in the right side of the mediastinum, causing the trachea and esophagus to deviate to the left. Barium-swallow study located this tumor in the retroesophageal or posterior medi-

*From the departments of Surgery and Radiation Therapy, Cedars of Lebanon Hospital.
†Clinic adjunct, Cedars of Lebanon Hospital.
‡Attending surgeon, Cedars of Lebanon Hospital.
§Director, Department of Radiation Therapy, Cedars of Lebanon Hospital.

astinal area (Fig. 1). Fluoroscopic examination disclosed questionable motion of the mass on deglutition. Thyroid function was normal, as evidenced by a 27.4 per cent radioactive iodine uptake over the usual location of the gland in the neck. Over the sternal area, however, the uptake was increased approximately 25 per cent on the right as contrasted with the left.

It was suspected that this mass was in all probability thyroid tissue. However, differentiation from other posterior

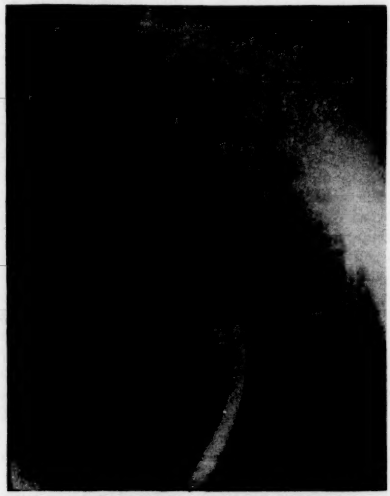

FIGURE 1. *Barium-Swallow Examination, Showing the Location of the Tumor.*

mediastinal tumors seemed important, since it would alter the surgical approach. Therefore, study of radioactive

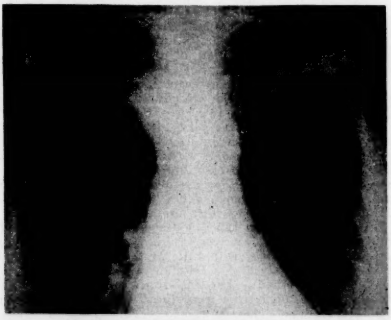

FIGURE 2. *Posteroanterior Film of the Chest. Note the superior mediastinal tumor displacing the trachea to the left.*

iodine uptake was repeated. This again revealed a 25 per cent increase in radioactivity over the right infraclavicular area as compared with the left. It seemed reasonable to conclude, therefore, that the mass consisted of thyroid tissue, despite its position. Because of the marked tracheal deviation and the attendant danger of obstruction surgical intervention was advised.

Under endotracheal anesthesia a collar incision was made, and the platysma muscle divided. The flaps were developed to the thyroid notch superiorly and below to the suprasternal notch. The right superior pole was divided and ligated, as were the middle thyroid vein and the inferior thyroid vessels. The thyroid isthmus was divided at the junction with the left lobe. A mass measuring 11 by 8 by 5 cm. arose from the inferior pole of the right lobe and was located substernally in the retroesophageal area (Fig. 2 and 3). This

FIGURE 3. *Pathological Specimen Superimposed on the X-Ray Film Shown in Figure 2.*

The esophageal groove can be made out, running longitudinally down the adenoma, to the right of the midline.

was enucleated with minimal difficulty since vascular control of the gland had already been obtained in the neck. The mediastinum was drained, and the wound was closed about the pack. The postoperative course was not remarkable.

Within the center of the specimen, the pathologist found a small in situ focus of papillary carcinoma, completely surrounded by an intact capsule.

DISCUSSION

With the addition of radioactive isotopes the diagnostic and therapeutic armamentarium has been greatly augmented. In the case reported above, it was possible to make an almost certain preoperative diagnosis of posterior mediastinal goiter, a rare condition. This enabled us to substitute a relatively simple procedure for a more formidable operation.

Actually, "posterior mediastinal goiter" is a misnomer. The pretracheal or middle layer of the deep cervical fascia is one of the most frequently described and least clearly understood of the cervical planes. The pretracheal fascia itself is subdivided into three layers. The superficial and intermediate subdivisions ensheath the sternohyoid, omohyoid, sternothyroid and thyrohyoid muscles. The deepest subdivision (visceral layer) surrounds the trachea, thyroid gland (capsule) and esophagus. When the thyroid gland enlarges posteriorly it may surround the esophagus, but it does not break through its capsule (Fig. 4). Properly, then, the so-called "posterior mediastinal

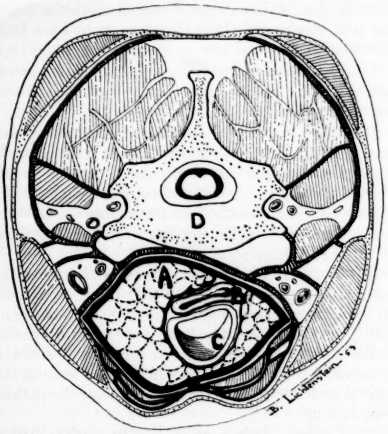

FIGURE 4. *Drawing, Showing the Goiter (Solid Black Line Represents the Pretracheal, and the Hatched Line the Prevertebral Fascia).*
A=*the right lobe of the thyroid gland extending behind the esophagus but still contained within the middle loop of the deep cervical fascia.* B=*the esophagus.* C=*the trachea.* D=*the sixth cervical vertebra.*

goiter" should be termed "substernal retrocsophageal goiter," for it remains midmediastinal in position.

SUMMARY AND CONCLUSIONS

The seventeenth reported case of so-called "posterior mediastinal goiter" is presented. This patient, like 13 former ones, was a woman. Furthermore, as in 13 of the 16 other cases, this tumefaction was located to the right of the midline.

The correct preoperative diagnosis was established by means of studies of radioactive iodine uptake, permitting a different and much simpler operative approach from those usually employed with tumors in this location.

The term "posterior mediastinal goiter" is considered a misnomer. It is suggested that it be corrected to "substernal retrocsophageal goiter."

We are indebted to Mrs. Irving L. Lichtenstein for the drawing and tc Mr. D. Gillette, of the Cedars of Lebanon Professional Photography Unit, for the x-ray photographs.

436 North Roxbury Drive (I.L.L.)
Beverly Hills

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CASE RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL

Weekly Clinicopathological Exercises

FOUNDED BY RICHARD C. CABOT

BENJAMIN CASTLEMAN, M.D., *Editor*

VIRGINIA W. TOWNE, *Assistant Editor*

CASE 40201

PRESENTATION OF CASE

A thirty-two-year-old man entered the hospital because of rapidly progressive loss of vision.

Blurring of vision in both eyes "like a cellophane curtain over the eyes," was suddenly observed for the first time eight months before admission. Five months later it had progressed to almost complete blindness, and the patient was forced to leave his work as an elevator operator. He had always had occasional headaches, but with the onset of blurred vision he began to have more severe throbbing, fronto-occipital headaches, occurring two or three times a week, usually at night, and relieved by sitting up or aspirin. At times the headaches were accompanied by pain behind the right eye.

There had been no nausea, vomiting, vertigo, tinnitus, disorder of speech, weakness or unsteadiness. His brother stated that the patient sometimes seemed to be mentally retarded and confused.

The past history revealed a chronic discharge from the left ear during childhood, with subsequent impairment of hearing.

Physical examination on admission showed a well developed and well nourished man in no distress.

Visual acuity was reduced to light perception in the right eye and perception of large forms in the left. There was temporal pallor of the optic disks, more marked in the left eye. There was no papilledema. In the left fundus there were large areas mainly in the temporal portion, consisting of white, scar-like centers surrounded by a narrow ring of pigmentation. A similar, small lesion was also seen in the temporal region of the right fundus. The lesions did not involve the macular areas, which were normal. There was no exophthalmos. The pupils were round and equal, measuring 3 mm., and reacted slightly to light and on convergence. The ocular movements were normal. There was no nystagmus.

Odors were identified with the left nostril, but the right nostril was obstructed by a deviated septum. The cranial nerves were otherwise normal.

The gait was normal, and there was no unsteadiness, weakness or inco-ordination. The Romberg test was negative. Sensation was normal. Arm, knee and ankle jerks were active and equal, and the plantar reflexes were normal.

The temperature was 98.6°F., the pulse 80, and the respirations 20. The blood pressure was 110 systolic, 70 diastolic.

Routine urine and blood studies were normal. The fasting blood sugar was 113 mg., and the total protein 7.5 gm. per 100 cc. The blood Hinton test was negative. Lumbar puncture revealed clear cerebrospinal fluid under an initial pressure equivalent to 180 mm. of water. The fluid contained no cells and had a total protein of 110 mg. per 100 cc.; its gold-sol reaction was 0012333210, and the Wassermann test was negative. An electroencephalogram demonstrated very low, unusually flat voltages with some rhythm as slow as 8 cycles per second. There was no localizing activity or difference between the two sides.

X-ray examination of the chest was negative. Skull films did not give any evidence of increased intracranial pressure. The convolutional markings were within normal limits. The anterior and posterior clinoid processes, sphenoid wings, petrous ridges and basal foramens appeared normal. The pineal body was calcified and in normal position. The sinuses were clear except for the left maxillary antrum, which contained a small amount of fluid. A pneumoencephalogram on the tenth hospital day disclosed incomplete filling and irregularity of the anterior horn of the right lateral ventricle. The remaining portions of the ventricles were slightly larger than usual. No air was visualized in the subarachnoid space.

On the twentieth hospital day an operation was performed.

Differential Diagnosis

Dr. David Cogan*: This relatively young man had progressive loss of vision over five months that was sudden in its onset and apparently progressive over eight months. The headaches I take to be significant, because, although they had always been present, they became accentuated with the onset of the visual complaints. The spinal-fluid protein was 110 gm. per 100 cc., and there was a filling defect in the lateral ventricle. Those are all the positive findings that we have to go on, which in some respects is unfortunate; on the other hand the negative neurologic examination is characteristic of lesions, tumors particularly, in the region of the chiasm. I should like to know whether or not the pneumoencephalogram showed any defect in the region of the third ventricle. There was no note of it in the record. Bakay and White[1] have described a technic for visualizing tumors of the third ventricle; I should think this is just the sort of case in which that test might have been informative if it had been applied.

Dr. Benjamin Castleman: This patient was admitted to the hospital over three years before that technic was developed.

Dr. C. C. Wang: Unfortunately, the most important films are missing. The floor of the third ventricle is not elevated, and the ventricular system lies in the normal position; I cannot confirm the findings in the lateral ventricle described in the protocol.

Dr. Castleman: Dr. Sweet, can you add anything to the x-ray description?

Dr. William H. Sweet: I was looking over my notes, and I did make a note that there was no air in the cisternal lamina terminalis or cisternal chiasmatis, the basal cisternae lying anterior and inferior to the anterior part of the third ventricle. Certainly, we would have expected those to be filled in both the sagittal and lateral projections taken with the patient lying face up.

Dr. Cogan: This is helpful. The patient had a lesion with no neurologic abnormality, but there is the suggestion of a pneumoencephalographic defect in the region of the chiasm, which is consistent with the clinical impression that there was a tumor. The nontumorous causes of chiasmal lesions, such as demyelinating diseases, pressure from sclerotic carotid arteries and toxic amblyopia, I think can be dismissed. The retinal lesions appear to have had no bearing on the intracranial lesion. The sudden onset favors an aneurysm, but the rest of the picture was not that of an aneurysm. The patient did not have the dramatic crises that commonly highlight the story of an aneurysm, and there was no other evidence to go with an aneurysm such as the characteristic cerebrospinal-fluid findings. Therefore, the differential diagnosis centers about neoplasms encroaching on the chiasm, particularly lesions that do not necessarily result in a change in the sella turcica. The progressive course is an argument in favor of tumor.

What are the tumors that could occur here? Pituitary tumor is statistically the first neoplasm in the region of the chiasm one would consider. The fact that the x-ray film of the sella turcica was normal does not rule this out because occasionally these lesions grow extrasellarly and expand to the region of the hypothalamus without producing changes in the sella turcica itself. The sudden onset is compatible with pituitary tumor. I have seen 2 patients with pituitary adenomas in whom the initial symptom was sudden blindness in both eyes. As recorded in the paper of Brougham, Heusner and Adams[2] this is found in necrotic, degenerating lesions with infarction or rupture of a blood vessel and sudden hemorrhage into the pituitary tumor. Indeed, apoplexy of the pituitary gland can be the presenting symptom of a pituitary tumor; however, in these cases collapse or coma oc-

*Associate surgeon in ophthalmology, Massachusetts Eye and Ear Infirmary.

curs as well, and I do not think a visual defect has been the sole manifestation of such a pituitary apoplexy. That, together with the absence of endocrine signs or a large defect in the third ventricle or both, makes pituitary tumor unlikely.

What are the other lesions in the region of the chiasm? Meningioma occurs to one next. Meningioma of the sphenoid ridge is unlikely. This tumor usually begins with more lateralizing symptoms, producing visual defects on one side and oculomotor signs rather than a simple bilateral visual-field defect. Meningiomas of the olfactory groove give a different type of syndrome, the Foster-Kennedy syndrome. On the other hand meningiomas of the tuberculum sella could cause exactly this picture of a bilateral visual-field defect without x-ray abnormalities.

A glioma of the chiasm can occur in an adult, although it is more common in children, but I think it can be ruled out by the fact that this patient had some vision although the lesion had reached the stage where a defect was evident in the ventricular system. That he still had some vision, I think, is incompatible with a tumor arising in the chiasm itself. Nor did he have diabetes insipidus, which is said to be a characteristic accompaniment of the lesions of the chiasm (although it was absent in the single patient whom I have seen with glioma of the chiasm). Tumor of the infundibulum is a definite possibilty, but I should expect more hypothalamic signs than were present in this case.

By exclusion I conclude that a meningioma arising from the dorsum of the sella turcica was present. It was just this differential problem that gave rise to the article by Cushing,[3] who described a series of cases of which meningioma of the tuberculum sellae was one of the prime examples. In that article was a drawing that has frequently been reprinted showing that such meningiomas arise between the anterior clinoid processes. I am bothered by the history of sudden onset of symptoms.

Dr. Schwab, will you show the electroencephalogram?

DR. ROBERT S. SCHWAB: The alpha rhythms are slower than the average for a normal person of thirty-two years: they are 8 per second on the occipital lobes. These are slow normal rhythms, and there is nothing slower or in fact anything else indicating a focal cortical disorder. There is no real difference between the two sides. It is within normal limits, with a slower frequency than we ordinarily see that could be due to depression of activity from thyroid or other endocrine disturbance or that might be merely a low rate that is normal.

DR. CASTLEMAN: Dr. Kubik, have you any comment?

DR. CHARLES S. KUBIK: The sudden onset also seems to me to be a serious objection to the diagnosis of meningioma. It is possible, however, that there had been some impairment of the vision peripherally that the patient had not observed and became aware of only after central vision had been affected. Did Dr. Sweet think that the third ventricle was normal?

DR. SWEET: My note did not specifically comment on the third ventricle, but there was a great deal of discussion about whether the pneumoencephalograms were abnormal. One of the preoperative debates was whether there was any roentgenologic evidence for neoplasm at all. Actually, the official x-ray report was that the pneumoencephalograms were normal. The data that I gave to Dr. Cogan were my preoperative bias.

CLINICAL DIAGNOSIS

Arachnoiditis of optic chiasm.
?Parasellar meningioma.

DR. DAVID COGAN'S DIAGNOSIS

Meningioma of tuberculum sellae.

ANATOMICAL DIAGNOSIS

Meningioma of tuberculum sellae.

PATHOLOGICAL DISCUSSION

DR. CASTLEMAN: Dr. Sweet, will you describe your operative findings?

DR. SWEET: Operation showed a large meningioma, as Dr. Cogan predicted. It began in the very anterior end of the skull and extended backward 1 or 2 cm. to the left of the midline and on the right side to about half the distance to the lateral wall of the skull so that the tumor displaced the middle cerebral vessels backward about 2 cm. on the right side. The chiasm was also about 2 cm. posterior to the tuberculum sellae. Not only did the lesion lie largely superior to these visual pathways but also there was a large nubbin curled beneath the right optic nerve, which was grossly elongated. As is commonly observed this was a very vascular tumor; we spent six hours working on it alone. We were particularly concerned to spend a good deal of time resecting it because this case falls in the category that Cushing described in his article as being perhaps inoperable.

The patient was almost blind when he was operated on. Another point that could be made is that he was extremely and belligerently ignorant. He had a curious response to all kinds of intellectual testing. He either replied, "This is high-school stuff, and I have not been to high school," or quickly countered with a question about one part or another of the textile machines that he had operated. Hence, I think the history of the sudden onset of blindness was of doubtful validity.

DR. KUBIK: Particularly since there was pallor of the optic disks shortly afterward.

DR. COGAN: That was about eight months later.

DR. EDWARD P. RICHARDSON, JR.: There is nothing that I can add to the excellent clinical and operative discussion except to confirm that the tumor was a meningioma — well differentiated, and composed of cells normally found in very small quantities in the arachnoid membrane.

It is striking that before the operation the patient was almost blind; he had bare light perception in one eye and the vaguest suggestion of being able to see gross forms in the other. When he was seen for a follow-up examination about a year after operation his vision had returned nearly to normal — that is, to 20/40 bilaterally — and he had gone back to his work as an elevator operator.

DR. COGAN: I think that is often characteristic of lesions of the chiasmal region, particularly tumors; the patient can be almost blind and then regain remarkable vision even though the blindness has been present for months.

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CASE 40202

PRESENTATION OF CASE

A twelve-year-old schoolgirl was sent to the hospital because of an abdominal mass and abdominal pain lasting two hours.

She was completely asymptomatic until the day of admission, when she awoke, felt well and ate breakfast as usual. At 8:30 a.m. she experienced a severe pain in the lower abdomen that was sharp and steady, not radiating and partially relieved by standing up straight. The pain was centered in the suprapubic region slightly to the left of the midline. There was no nausea, vomiting or urge to defecate or urinate. She was given two enemas, with good results, but no appreciable change in the pain, which subsided at the end of two hours and did not return. The family physician found her afebrile and asymptomatic but palpated an abdominal mass.

The past history included normal birth and development, the usual childhood diseases, tonsillectomy at the age of four years and menarche at eleven years and two months. The menstrual periods lasted four or five days, occurred about every twenty-eight days and were associated with mild discomfort during the first day. The last period was normal and had begun eleven days before the onset of the pain. She had gradually become obese, with no rapid changes in abdominal girth. There was no history of dysuria or abdominal trauma.

Physical examination revealed a well developed girl in no distress. She weighed 199 pounds and was 65 inches tall. The head, chest and heart were normal. The abdomen was obese but not definitely protuberant. There was no tenderness. In the low midline there was a round mass, rising above the umbilicus. It was nontender, had a rubbery texture and was movable from side to side. The lower border was vague and could not be outlined below the pubis. On pelvic examination the introitus admitted one finger easily. The cervix was normal, and it was not possible to delineate the fundus. The mass was thought to be separate from the uterus, though the cervix moved with pressure on the abdomen. These findings were confirmed on rectal examination. The secondary sex characteristics were well developed.

The temperature was 98.6°F., the pulse 100, and the respirations 12. The blood pressure was 110 systolic, 70 diastolic.

The urine had a specific gravity of 1.008 and gave negative tests for albumin and sugar; the sediment contained 4 white cells per high-power field. Examination of the blood disclosed a hemoglobin of 14.4 gm. per 100 cc. and a white-cell count of 11,800, with 61 per cent neutrophils, 30 per cent lymphocytes and 5 per cent atypical lymphocytes. The sedimentation rate was 17 mm. per hour. An intravenous pyelogram showed slow appearance of the contrast material in the calyceal systems. The left kidney was never well visualized in that only the lower calyxes were well seen. These were dilated. The calyceal systems of the right kidney were dilated and emptied slowly. The ureters were not visualized. On barium-enema examination barium flowed easily through the colon and filled the terminal ileum. The mucosa was normal. A huge abdominal mass displaced the ileum and colon (Fig. 1). The mass contained no calcifications and did not communicate with the lumen of the colon. Chest roentgenograms were normal.

The pain did not recur after the initial episode, and on the fourth hospital day an operation was performed.

DIFFERENTIAL DIAGNOSIS

DR. WILLIAM V. MCDERMOTT, JR.*: To review briefly the salient features in this protocol, the history is purely that of an episode of sharp, transient pain without any particular features that would lead me to the diagnosis. The only thing it suggests is that the abdominal mass became twisted in some way so as to produce visceral pain, which then subsided fairly soon. It seems, therefore, that I shall have to rely on the physical examination, the x-ray findings and an evaluation of the statistically most likely possibilities.

To begin with the physical examination, the mass was interpreted — I gather from the protocol — as a round mass arising in the pelvis and extending somewhat above the umbilicus, with the lower border not definitely delineated suprapubically. By pelvic examination the mass was thought to be separate

*Assistant in surgery, Massachusetts General Hospital.

from the uterus. I think the laboratory examinations that are available are of relatively little value. The white-cell count of 11,800 was perhaps slightly elevated, but the differential count was not remarkable; I do not think the atypical lymphocytes contribute to the specific problem at hand. The white-cell count may have represented the result of a partial torsion of an abdominal tumor or may have been in the upper range of normal within the error of the method. The x-ray films may help me; may we see them, Dr. Gibbons?

DR. JOHN F. GIBBONS: The abdominal survey film demonstrates a large mass extending high up in the abdomen from the pelvis. Its lower border is ill defined, but I have the impression that it is partially in the pelvis and is displacing the gas-filled colon; later, in the barium-enema examination, it is seen displacing the colon, the loops of ileum in the midabdomen and probably also the appendix, which extends upward close to the cecum (Fig. 1). We also have films

FIGURE 1.

from the intravenous pyelogram showing that the excretion of the kidneys is quite prompt. The first film, made after eight minutes, reveals dye in the renal collecting systems. The kidneys look normal in size, shape and position and apparently are not influenced by the mass. There is hydronephrosis in the right side, and the left collecting system, I think, is dilated though less than the right side, and all the calyxes are filled, so that I do not think there is anything intrinsic in the kidneys. The hydronephrosis can probably be explained by pressure on the ureters by the large mass. The bladder shadow is compressed in a normal fashion for a female — that is, not more than it usually is compressed by the uterus. The rectum, rectosigmoid and bladder shadows are all normally outlined. There is no calcification within the mass, and the bones look normal.

DR. MCDERMOTT: Is there a lateral film to give us any idea of the anteroposterior relation of the mass?

DR. GIBBONS: No; there is not. The psoas-muscle shadow is visible through this mass, however, and I should expect that it is on the abdominal side of the peritoneum; I do not think it is retroperitoneal.

DR. MCDERMOTT: That is quite helpful, particularly the outline of the bladder shadow, because, although I do not think it is worth while in these discussions to list every abdominal mass that might exist, two common abdominal tumor masses in a female are the pregnant uterus and the distended bladder from a neuropathy or an obstruction of the lower ureters. I can rule out the genitourinary tract since it is quite obvious that the mild distention of the calyceal system was from partial extrinsic ureteral obstruction. The possibility of a pregnant uterus seems unlikely in this particular case. The menstrual history had apparently been normal up to the time of admission; although pregnant women may continue to have menses of a sort there was nothing else to go with that condition in this young girl. The description of the introitus sounds marital, but there was no description of the signs of pregnancy, nor were there any symptoms of pregnancy, which I think can be reasonably discarded.

The mobility of this mass as described and Dr. Gibbons's helpful interpretation of the x-ray films make me believe I can rule out a retroperitoneal tumor. One would not expect a retroperitoneal tumor to be so freely movable or so easily palpable abdominally as this was. The x-ray appearance of the displacement of the intestinal tract is not consistent with a retroperitoneal mass. There was nothing to suggest an origin in the gastrointestinal tract. Of course in this age group a huge duplication of the intestinal tract might be present, but the location of the mass, the x-ray picture and the age of the girl are somewhat against that diagnosis and I should consider it unlikely.

Omental or mesenteric cysts or tumor masses arising in the reproductive system, therefore, are the possibilities to which I come. An omental cyst would usually overlie the bowel and would not cause in general quite this type of displacement. A lateral view of the abdomen is often helpful in the preoperative diagnosis of an omental cyst. Under the circumstances I think I can rule it out as the most likely cause of this mass. Mesenteric cysts in this very young age group, although they may attain an enormous size, are usually somewhat flabby, tend to be lobulated and frequently are dumbbell-shaped. From reading the physical examination I have the impression that this was a smooth, rubbery, firm, either cystic or solid tumor and on that basis I shall exclude a mesenteric or enteric cyst.

Among the possibilities of tumor masses arising in the pelvis from the gynecologic system, tumors of the

uterus in this age group are extremely unlikely. Certainly, pregnancy should be considered to be very improbable. Nothing in the history suggests a retention type of enlargement of the uterus such as a hematometrium. Primary tumors in the uterus, although they have been reported in very young girls, are extremely rare. I think, therefore, that I may confine the remainder of this discussion to the adnexa, specifically to the ovaries.

On first reading this history one might wonder about an endocrine abnormality, but I do not think that existed. I doubt if the obesity was on an endocrine basis from the description. The menarche occurred early in life, but not abnormally so, and the menstrual cycle had been normal for a girl, particularly at an age when abnormalities are relatively common. It appears that she had been ovulating regularly since she had some degree of pain on the first day of each period. The cycle had been regular, with no obvious disturbances. Any type of endocrine-secreting tumor, therefore, seems to be unlikely.

What types of neoplasms arise in the adnexa in children? Cystic tumors, either neoplasms or simple cysts, originate in the ovaries. Of these, the most common, although all these tumors are uncommon, are the dermoid cysts, which may be unilateral but in many cases — up to 20 or 30 per cent — are bilateral. Sometimes, the bilaterality is not obvious since one of the dermoids may be of enormous size and the other quite small. The solid tumors that occur in the ovary are sarcomas, which are perhaps the rarest of this group, teratomas, which are somewhat more common, and carcinomas, which develop in the ovaries of young girls or children. The ovarian carcinomas in children are usually of the embryonal type, are quite malignant and generally cause an early death; therefore, I think such a tumor would not grow to this size and allow the patient to be in such excellent physical condition and as asymptomatic as this girl was.

A dermoid cyst of the ovary is probably the most likely diagnosis in this case. Such a cyst could easily, from its pelvic location, press on the ureters as they crossed the brim of the pelvis and result in this type of intravenous pyelogram. Often the existence of these dermoid tumors is a real tragedy in young girls because they do involve both ovaries, and it may be impossible technically to leave any ovarian tissue at operation. Obviously, the surgeon should make every attempt to save even a thinned atrophic segment of one ovary in cases of bilaterality.

I am sure that I have not covered all the abdominal tumors in children; perhaps I have not mentioned the tumor she had. Nevertheless, I think I can reasonably, at this stage, put as the most likely diagnosis a dermoid cyst of the ovary, either unilateral or perhaps bilateral, with a much smaller tumor involving the other ovary.

Clinical Diagnosis

Mesenteric cyst.
?Ovarian cyst.

Dr. William V. McDermott's Diagnosis

Dermoid cyst of ovary, ?bilateral.

Anatomical Diagnoses

Pseudomucinous cystadenoma of left ovary.
Follicle cyst of right ovary.

Pathological Discussion

Dr. Robert H. Fennell, Jr.: At operation, in the left ovary was a large cyst that measured approximately 30 cm. in diameter and was semitranslucent; externally, it was free of papillary growths. The entire ovary had to be resected because it had been completely replaced by this tumor. It contained clear, watery fluid and had a smooth flat lining, but there were two loculations within the cyst.

Microscopical sections showed tall columnar epithelium; the top part of the cell was clear and filled with mucus, and the nuclei were lying in flat rows at the base of the cells. There was no evidence in any part of this of any piling up of cells or papillary growth and no evidence of mitoses or increase in size of the nuclei; it was a perfectly benign pseudomucinous cystadenoma.

Dr. Fletcher H. Colby: Is there any evidence that the cyst had twisted at the time of the pain?

Dr. Fennell: We found no indication that that had occurred; the tumor was all perfectly viable at the time we received it. I suspect that the episode two days before admission is explained by this partial twisting and untwisting.

The other ovary had a small cyst, approximately 2 cm. in diameter; this cyst was also resected, leaving the remnant of the right ovary. Microscopically, this was a simple follicle cyst; it was lined with granulosa cells and theca cells. It is one of the most common cysts, but it is not a neoplasm.

Dr. McDermott, would the size of the cyst of the left ovary make you think less of the dermoid and more of a pseudomucinous cystadenoma?

Dr. McDermott: That is difficult to evaluate from the clinical point of view. I had not considered a cystadenoma seriously because of the patient's age. They must be very uncommon tumors in children. This twelve-year-old girl was on the borderline between childhood and adulthood. Perhaps because of the early menarche I should have regarded her as a woman; then I should have considered a cystadenoma more seriously. Dermoids can grow to enormous sizes without symptoms whereas simple cysts rarely do.

Dr. Farahe Maloof: Were other endocrine studies performed? In this type of patient with obesity and an ovarian tumor at a young age there may be multiple endocrine abnormalities.

Dr. Fennell: This girl is still being followed. She is being given a reducing diet, and I suppose further studies will be done if that is not successful. It was thought that this was a case of exogenous obesity.

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BICENTENARY OF BENJAMIN WATERHOUSE

THE *British Medical Journal*, consistently on the alert for events of interest, historical as well as scientific, has already scooped the *Journal** in commemorating the bicentenary of a noteworthy New England physician. This person was the eminent, if contentious, Benjamin Waterhouse, — "the Jenner of America," — who was born on March 4, 1754, at Newport, Rhode Island.

A second cousin on his mother's side of John Fothergill, Waterhouse studied medicine with this prominent London physician immediately before the War of Independence, later moving on to Edinburgh and Leyden for the completion of his education. On the basis of these studies and his natural attainments he became, at the age of twenty-eight, the first professor of the theory and practice of physic at the newly established Harvard Medical School.

*Armytage, W. H. G. Jenner of America: bicentenary. Nova et Vetera. *Brit. M. J.* 1:577, 1954.

Two years later, on July 1, 1784, Waterhouse was approved by the Council for fellowship in the Massachusetts Medical Society, at that time limited to 70 fellows. True to form he declined the honor for nearly a year before finally accepting it; in 1811 he became one of a group that attempted to split away from the organization and form a rival society under the name of the Massachusetts College of Physicians. This act of recalcitrance proved to be the last straw in a long series of controversies with his brother professors of a faculty that was then closely related to the Society. In that same year, according to Burrage's *History of the Massachusetts Medical Society*, John Warren, Aaron Dexter, John C. Warren and James Jackson asserted to the corporation that they were "unwilling to have further intercourse with him," and the following spring the turbulent professor was separated from his professorship.

Waterhouse's greatest contribution to medicine lay in his early acceptance and uncompromising defense of the practice of vaccination. As early as 1800, Jenner's *Inquiry into the Causes and Effects of the Variolae Vaccinae* having appeared only in the previous year, he secured some lymph from England and successfully vaccinated his five-year-old son and a servant boy. The success of the procedure was attested by the subsequent inoculation of one of the subjects with smallpox virus from the hospital at Brookline. Six weeks later the report, *A Prospect of Exterminating the Small Pox*, appeared.

Vaccination spread rapidly, — in 1801 President Jefferson and his entire family submitted to it, — but for a time the brilliance of the discovery was dimmed because of the use, by impetuous vaccinators as well as by charlatans, of inert and impure cowpox material. Subjected to criticism and abuse, Waterhouse asked for an impartial investigation by the Boston Board of Health, which completely vindicated him. From that time on one of his chief concerns was the championing of pure vaccine virus.

His efforts in the cause of vaccination helped to impoverish him, and after the loss of his professorship Waterhouse was able to support his family only by the superintendency of certain New England medical posts to which he was appointed by President Madison. Despite a life that must have been characterized by the secretion of extraordinary quantities of epinephrine he survived for ninety-two years.

IN FEWER WORDS

ALL writing, it has been said, with the exception of medical literature, has a conversational quality. This statement, planned for effect, is of course not entirely accurate; all writing, much less all good writing, has not necessarily such a colloquial flavor, although it is probably true that scientific writing in general lacks it most of all.

Conversational language is not usually that of the technical presentation; terse and clear as the latter

should be it concerns a type of material that is not commonly a subject of conversation. Voluminous as this dialect may be in the periodicals dedicated to its publication, despite its frequent use on the lecture platform or in classroom or laboratory, it does not often make its appearance on the street, in the drawing room or at the dinner table.

It is a matter of comment that so many physicians, producing the greatest bulk of current literature of any profession in the world, aside from that for which professional writers are responsible, should close their fingers, when they take pen in hand, into such an awkward fist. This is largely because so many amateur writers are haunted with the belief that ideas are born fully developed, like Athena from the brow of Zeus, and are capable of making their way in society from the beginning. They do not take to heart the lesson, so often repeated, that the only good writing is good rewriting, and that easy writing, as Thackeray and probably others are said to have remarked, makes damned hard reading.

These observations, however, were not the primary object of the present strictures. The editors had in mind in this instance only to call to the attention of the readers of the *Journal* a set of editorial resolutions, dated January 1 but not acknowledged at the time, regarding certain common verbal excesses on the part of medical authors.

The first of these resolutions is to discourage those top-heavy titles in which the author, in his enthusiasm, attempts to predigest and project in summary form the entire paper. Titles, like headlines, should acquaint the reader in the fewest possible words with the main object of the paper. A subtitle may serve as an explanatory amplification of the problem to be elucidated, but it is difficult not to think of the three-line or four-line spread as an attempt to crowd too much of the stock in trade into the show window.

A second resolution is to discourage the literary excess that includes in the list of authors all persons who seem to have had any connection whatsoever with the work on which the masterpiece was based. With due consideration of the adage that too many cooks spoil the broth, many of these multi-jointed efforts are far from being so incoherent as to have been written by seven or even five authors. The editors not too timidly suggest that two or at most three persons be credited with collaboration in the writing of the paper and that the participation of the rest be acknowledged in some more appropriate and less monotonous manner.

The third resolution of 1954 concerns those bibliographic lists that require measurement in feet rather than inches, despite the fact that type composition is paid for, and substantially, by the inch. Inclusive lists of references may sometimes be of value; at other times, it is feared, they are but the façade of a spurious erudition; often they seem to consist of all the titles apparently bearing on a subject that a secretary was able to excavate from the *Quarterly Cumulative Index*.

If more authors appreciated the potential value of the words with which they are so profligate, and the cost of reproducing them, there would be fewer of them left lying around.

REHABILITATING THE HOUSEWIFE

Concern over the industrial worker, handicapped from whatever cause, has become a major medical consideration, and his rehabilitation and re-entry into the ranks of the employed have become almost standard procedure. Much less has been said about the silent working partner in the enterprises of man, who, by providing a home for him in health or in sickness, makes it possible for him to work at top level when well and to benefit fully from his rehabilitation after illness.

Various types of physical handicap, however, may affect the woman also, even more than they do the man, for she has frequently the burden of pregnancy and childbearing added to the unremitting toil of the homemaker seven days a week. Cognizant of this situation, so obviously unfair to unorganized labor, the American Heart Association has developed a work-simplification program designed to aid the physician in prescribing a routine workday for his women cardiac patients.

Studies of the housewife's daily tasks have been made and from them a series of work-simplification classes designed. Each woman handicapped by heart disease, on referral by her physician, is encouraged to attend four two-hour lecture demonstration classes, held at weekly intervals. Here she is instructed in the adaptation to household tasks of work-simplification technics, enabling her to save up to 75 per cent of her energy.

Already in operation in various states, the program will shortly be introduced into this commonwealth as a free community service of the Massachusetts Heart Association.

THE AUXILIARIES MEET

There was a time when a wife, accompanying her husband to an annual meeting of the American Medical Association or the Massachusetts Medical Society, deposited him before the doors of learning and hastened away to the doors behind which panel discussions considered only the status of milady's bonnet. During the course of the meeting, if the twain did meet, it was primarily for a reconsideration of the family budget.

Today, however, the ever-growing and increasingly effective auxiliary organization has changed that pic-

ture. Wives, accompanying their husbands to medical sessions, have their own important meetings to attend. And attend them they do, with an enthusiasm that is worthy of male emulation.

Indications are that the meeting of the Woman's Auxiliary of the American Medical Association in San Francisco in June like that of the Massachusetts Medical Society just ended will break all previous attendance records. The *Journal* recommends these excellent programs to all physicians' wives.

The editors note, too, — with amazement, admiration and resignation, — that despite a heavy schedule of Auxiliary meetings and despite their involvement in problems ranging from medical economics to nurse recruitment the wives find time to visit the well appointed salons where, as mentioned above, the panel discussions concern less vital subjects.

There is on exhibition in this city a tooth-key said to have been used by Dr. Snowden on board the Mayflower in 1492. A slight mistake, probably, both as regards the time of its use, and the real puritanical vessel of the pilgrims in 1620.

Boston M. & S. J., *May 24, 1854*

MASSACHUSETTS MEDICAL SOCIETY

DEATHS

NATHANSON — Ira T. Nathanson, M.D., of Boston, died on May 3. He was in his fifty-first year.

Dr. Nathanson received his degree from Northwestern University Medical School in 1930. He was associate clinical professor of surgery at Harvard Medical School, a member of the staffs of the Massachusetts General and Huntington Memorial hospitals, and chairman of the committee on cancer diagnosis and therapy, National Research Council, and of the subcommittee on cancer and steroids of the American Medical Association. He was a fellow of the American College of Surgeons and the American Academy of Arts and Sciences and a member of the American Association for Cancer Research, American Cancer Society, American Physiological Society, American Association for the Advancement of Science, American Society for Clinical Investigation, Ewing Society, New England Cancer Society and Boston Surgical Society.

He is survived by his parents and a sister.

JACKSON—George H. Jackson, M.D., of Plymouth, died on April 15. He was in his seventy-sixth year.

Dr. Jackson received his degree from Harvard Medical School in 1904.

He is survived by his widow, a niece and several cousins.

CORRESPONDENCE

IT HAPPENS SOMETIMES

To the Editor: From the broad plains of the United States this humble subscriber and admirer of the *Journal* sends heartiest congratulations on the new format introduced last month. It is a real credit to your prestige as the first ranking medical journal in this country. Your editorship has always presented well written and provocative articles. The printing has been adequate in the past, but now it is superb. I am a hopeless addict to reading medical literature in bed, just before retiring. Often as not, the poor printing or glaring paper of the average journal causes me to seek sleep rather than knowledge. Your journal was not always as it is today. Many papers were half read or not read at all because of "type fatigue." This is no longer true. I can only hope that less well printed proclaimers of the new and exciting in the world of medicine will follow in your happy footsteps.

ROBERT P. MASLAND, JR., M.D.

Yankton, South Dakota

HASHIMOTO'S STRUMA

To the Editor: The editorial entitled "To the Editor—" in the March 25 issue of the *Journal* serves as a catalyst to this letter. The article by Gribetz, Talbot and Cranford on "Goiter Due to Lymphocytic Thyroiditis (Hashimoto's Struma)" in the April 1 issue has, it is feared, an incorrect title. The description of the microscopical examination includes no reference to fibrosis. If the fibrosis, well described by Hashimoto (*Arch. f. klin. Chir.* **97**:219-248, 1912) in a paper recently translated (*Am. J. Clin. Path.* **19**:751-752, 1949), is absent it is difficult to enroll a case as one of Hashimoto's struma; lymphadenoid goiter would be more appropriate.

S. M. RABSON, M.D.

Fort Wayne, Indiana

Note: Although it is true that in Hashimoto's original description fibrosis was present most pathologists do not differentiate the lymphadenoid goiter (without fibrosis) and the Hashimoto struma. The former may be merely an early stage. — ED.

BOOK REVIEWS

A Ray of Darkness. By Margiad Evans. 12°, cloth, 191 pp. New York: Roy Publishers, 1953. $3.00.

The writer is an Englishwoman, poet and author, who while alone in her cottage, experienced a severe convulsion, followed in later months by others and by more frequent and disquieting psychic or psychomotor seizures. With peculiar clarity and beauty of expression she describes her symptoms and the complications that followed as no patient, in my experience, has ever described them. A lover of nature and deeply introspective, she inquires within herself for an explanation of these unnatural and devastating events. She arrives at no clear solution; hence, the book has no happy ending. Nevertheless, it should be read by all who are concerned with the impact of a serious illness on an honest and sensitive mind.

WILLIAM G. LENNOX, M.D.

Official History of the Canadian Medical Services, 1939-1945: Clinical subjects. Vol. 2. Edited by W. R. Feasby, M.D. 8°, cloth, 537 pp., with illustrations and tables. Ottawa: Edmond Cloutier, C.M.G., O.A., D.S.P., Queen's Printer and Controller of Stationery, 1953. $5.00.

Two volumes of the history of Canada in World War II have been authorized by the Minister of National Defense. The first will be published at a later date. This volume, which is devoted to the clinical services, was written by representatives of the Army, Navy and Air Force. The whole field of general medicine and the specialties are covered, including surgery, medical research and statistics. This excellent book is recommended for all history collections, general and medical.

JAMES F. BALLARD

A History of Scientific English: The story of its evolution based on a study of biomedical terminology. By Edmund Andrews, M.D. 8°, cloth, 342 pp., with 18 illustrations. New York: Richard R. Smith, 1945. $7.50.

The late Dr. Andrews wrote a scholarly work on the origin, evolution and development of medical and scientific terminology. It is in a class with Bodmer's *Loom of Language* and Sarton's *History of Science,* listed in the order of publication but not of value. They are all of comparative importance. The author discusses Indo-European philology and semantics (the science of meanings), leading up to a chapter on the history of medical terminology. The following chapters (on pre-Hellenic influences, the Aryan heritage, Greek, Latin, dead Latin, Arabic, French, English [Anglo-Saxon, middle and modern] and German) elaborate on the history. There is a chapter on science versus vulgarity, in which the gutter and vulgar words, many unprintable in modern English (even Murray, in the *Oxford Dictionary,* omitted them), are described. The author concludes with a plea for further research into the past and with a consideration of basic English, the possible scientific language of the future, although impossible of attainment at present.

There is a bibliography, a comprehensive index and the publishing is excellent. The book should be available to medical and scientific scholars and to interested medical librarians for reading or at least for reference purposes.

JAMES F. BALLARD

Functional and Surgical Anatomy of the Hand. By Emanuel B. Kaplan, M.D. 4°, cloth, 288 pp., with 132 illustrations. Philadelphia: J. B. Lippincott Company, 1953. $10.00.

The dependence of good surgery on a knowledge of anatomy is again demonstrated in this book. This study is most timely with the awakened interest in the surgical repair and rehabilitation of injuries involving the hand. The author divides the text into three sections: the hand as an organ; structure and function; and surgical anatomy. The older studies of anatomy and kinesiology are reviewed and correlated with more recent ones. There are many original contributions by the author. Many seemingly paradoxical deformities and movements of the fingers are satisfactorily explained by a fuller knowledge of the insertion of muscles and ligaments about the phalanges.

The volume is illustrated with many excellent anatomic drawings. This is a most valuable book on the hand. It will be of value to all surgeons and anatomists and particularly helpful to orthopedic surgeons who specialize in the surgical repair of injuries and deformities of the hand.

JOHN G. KUHNS, M.D.

Medical Schools in the United States at Mid-Century. By John E. Deitrick, M.D.; and Robert C. Berson, M.D. 8°, cloth, 380 pp., with 14 illustrations and 71 tables. New York: McGraw-Hill Book Company, Incorporated, 1953. $4.50.

This volume comprises the formal report of the Survey of Medical Education, which was organized in 1947. A survey was made of representative authorities in medical schools. On the basis of the resulting facts the study presents a current evaluation of the medical school and its leadership, functions and finances, as well as its operation, curriculum and teaching methods. Advanced education and training are also discussed. Libraries are deemed important as indispensable aids to study.

The Committee has made a comprehensive summing up and has arrived at the following basic conclusions:

The future of medical education will be decided, not by a survey, but by the public and the future leaders of medical schools and universities.

The medical student should be the focus in all activities and policies of the medical school. . . .

The greatest need of the medical schools of today is clear critical thought, by men who are sincerely interested in the education of students and who have an understanding of educational principles, a knowledge of science, and a familiarity with social and economic trends.

JAMES F. BALLARD

Intracranial Aneurysms. By Wallace B. Hamby, M.D. 8°, cloth, 564 pp., with 193 illustrations. Springfield, Illinois: Charles C Thomas, 1952. $14.25.

This monograph covers old and recent information about aneurysms. The anatomy and physiology of the cerebral circulation, as well as the methods and results of occlusion of cerebral vessels, are described. Aneurysms of various types and the possible causes of congenital aneurysms are considered. The symptoms and treatment of aneurysms are given according to their sites, separate chapters being devoted to unruptured atrial aneurysms, subarachnoid hemorrhage and ruptured aneurysms, and arteriovenous aneurysms. Dr. Hamby evaluates the literature according to his own extensive experience and reviews his own cases briefly. The illustrations, especially those demonstrating angiocardiography, are clear and accurate. The bibliography of over 700 references is discriminatingly assembled. There are author and subject indexes. The book is beautifully printed. It is recommended to neurologists and neurosurgeons and may be consulted profitably by all physicians treating cerebrovascular accidents.

WILLIAM H. TIMBERLAKE, M.D.

Classics in Clinical Dermatology: With biographical sketches. By Walter B. Shelley, M.D., Ph.D.; and John T. Crissey, M.D. With an introduction by John H. Stokes, M.D. 8°, cloth, 467 pp., with 107 illustrations. Springfield, Illinois: Charles C Thomas, 1953. $10.50.

A number of books have been written on the classics of various branches of medicine. Naturally representing the personal selections of the authors, they may give rise to differences of opinion, but on the whole they are excellent reference sources. No previous attempt has been made to present in the English language, selections in the field of dermatology. In the present volume 95 physicians describe 143 diseases. The foreign contributions have been translated into English.

The text is divided into four parts, comprising early workers, the middle period, a golden age and the modern period. Beginning with Robert Willan, 1757-1812, the father of modern dermatology, and ending with Stuart D. Allen and John P. O'Brien, a period of over a hundred and thirty-five years has been covered. This excellent book is recommended to all dermatologists and medical libraries.

JAMES F. BALLARD

BOOKS RECEIVED

The receipt of the following books is acknowledged, and this listing must be regarded as a sufficient return for the courtesy of the sender. Books that appear to be of particular interest will be reviewed as space permits. Additional information in regard to all listed books will be gladly furnished on request.

A Guide to Human Parasitology for Medical Practitioners. By D. B. Blacklock, C.M.G., M.D.(Edin.), D.P.H.(London), D.T.M.(Liver.), director of the Sir Alfred Lewis Jones Laboratory, Freetown, Sierra Leone, West Africa; and T. Southwell, D.Sc., Ph.D., A.R.C.Sc., F.Z.S., F.R.S.E., director of fisheries to the governments of Bengal and Bihar and Orissa, and scientific adviser and inspector of pearl banks to the Ceylon Company of Pearl Fishers. Revised by T. H. Davey, O.B.E., M.D.(Belf.), D.T.M.(Liver.), professor of tropical hygiene, Liverpool School of Tropical Medicine, University of Liverpool, and director of the Sir Alfred Jones Laboratory, Freetown, Sierra Leone, West Africa. 8°, cloth, 228 pp., with 120 illustrations and 3 plates. Baltimore: Williams and Wilkins, 1953. $5.50.

This standard British book, first published in 1931, has gone through twelve printings. The previous fourth edition was published in 1940. The text has been revised and brought up to date. A short note on prevention has been incorporated in the material on each parasite. Some new parasites have been included. The illustrations and publishing are excellent. There is a good index. The printing was done in Great Britain.

Childbirth Without Fear: The principles and practice of natural childbirth. By Grantly D. Read, M.A., M.D. (Camb.). Revised and enlarged. 8°, cloth, 298 pp. New York: Harper Brothers, 1953. $3.00.

Dr. Read, in this new edition of his popular book, describes completely his method of natural childbirth. New material and five new chapters have been included in this edition. Dr. Read first wrote his book in 1953, under the title of *Natural Childbirth*. It has been translated into Italian, Dutch, Danish, French, Swedish, German, Norwegian and Afrikaans. There is an index, and the publishing is good.

Clinical Unipolar Electrocardiography. By Bernard S. Lipman, M.D., instructor in medicine, Emory University School of Medicine, consultant, Cardiac Clinic, Grady Hospital, and cardiac consultant, Veterans Administration Regional Office, Atlanta, Georgia; and Edward Massie, M.D., assistant professor of clinical medicine, Washington University School of Medicine, director of Heart Stations, Barnes Hospital and Jewish Hospital, St. Louis, director, Cardiovascular Clinic, Washington University Clinics, and area consultant in cardiology to the Veterans Administration. Second edition. 8°, cloth, 309 pp., with 260 illustrations. Chicago, Illinois: Year Book Publishers, Incorporated, 1953. $6.50.

In this new edition the authors have revised their text, and sections on cardiac arrhythmias, myocarditis, congenital heart disease, hyperventilation and the two-master test have been added. The book is well published and illustrated with 154 electrocardiograms following the text. There is a bibliography of 219 references.

Bailey's Text-Book of Histology. Revised by Philip E. Smith, Ph.D., Sc.D.; and Wilfred M. Copenhaver, Ph.D., professor of anatomy, Columbia University College of Physicians and Surgeons. With the assistance of Dorothy D. Johnson, Ph.D., assistant professor of anatomy, Columbia University College of Physicians and Surgeons. Thirteenth edition. 8°, cloth, 775 pp., with 442 illustrations. Baltimore: Williams and Wilkins, 1953. $9.00.

This well known textbook was first published in 1904 by Dr. Bailey. Twelve editions and eight reprintings preceded the printing of this new edition. The text has been revised, and illustrations added. Lists of references are appended to the chapters, and there is an extensive index. The publishing is excellent.

Progress in Neurology and Psychiatry: An annual review. Volume 8. Edited by E. A. Spiegel, M.D., professor of experimental neurology and head, Department of Experimental Neurology, Temple University School of Medicine. 8°, cloth, 591 pp. New York: Grune and Stratton, 1953. $10.00.

In this new volume of a valuable reference series over 3200 papers have been reviewed, with substantial abstracts. The material is divided into four sections—on the basic sciences, neurology, neurosurgery and psychiatry. The lists of references cited are appended to the chapters. There is a good index of subjects, and the book is well printed. It should be in all medical libraries and available to neurologists and psychiatrists.

May's Manual of the Diseases of the Eye for Students and General Practitioners. Revised and edited by Charles A. Perera, M.D., associate clinical professor, Columbia University College of Physicians and Surgeons, and attending ophthalmologist, Presbyterian Hospital, New York City. Twenty-first edition. 12°, cloth, 512 pp., with 378 illustrations. Baltimore: Williams and Wilkins, 1953. $6.00.

This popular manual has an interesting publication history. First published in 1900, it has now gone through 21 American and 11 British editions. Foreign editions in translation comprise 12 Spanish, 6 French, 7 Italian, 6 Dutch, 2 German and Japanese, 4 Chinese and 3 Portuguese and 1 in Urdu (India). This new edition has been revised and brought up to date, with the inclusion of new material on cortisone and ACTH, antibiotics, Krönlein's operation, scleral resection in the treatment of separation of the retina and retrolental fibroplasia. Illustrations have been added; there is a good index, and the publishing is excellent.

Pheochromocytoma and the General Practitioner. By Joseph L. DeCourcy, M.D., and Cornelius B. DeCourcy, M.D. 8°, cloth, 165 pp. Cincinnati 2, Ohio: DeCourcy Clinic, 1952.

This monograph discusses pheochromocytoma, the "great mimic," in all its aspects. In support of its nickname 29 cases in which the disease has been mistaken for other conditions are cited. The text begins with a historical résumé, 1886-1952. There is a bibliography of 361 references and an index. The small book should be in all medical libraries.

Peptic Ulcer: Pain pattern, diagnosis and medical treatment. By Lucian A. Smith, M.D., M.S., assistant professor of medicine, Mayo Foundation, and head of section, Division of Medicine, Mayo Clinic; and Andrew B. Rivers, M.A., M.D., M.S., consultant, Division of Medicine, Mayo Clinic. With a foreword by George B. Eusterman. 8°, cloth, 576 pp., with 208 illustrations. New York: Appleton-Century-Crofts, Incorporated, 1953. $12.50.

The authors, assisted by Drs. Herbert W. Schmidt, C. Allen Good and Richard R. Ferayorni, have presented a thorough discussion of peptic ulcer, with emphasis on treatment. The first chapter is devoted to history from the earliest time to the present. This is followed systematically by chapters on anatomy and pathologic anatomy, physiology, etiology, diagnosis and symptoms and treatment of the disease and its complications. References are appended to the chapters, and there is a good index. The publishing is excellent. The book should be in all collections on gastroenterology.

Symposium on Chromosome Breakage: Held at the John Innes Horticultural Institution, 9-11 June, 1952. 4°, cloth, 315 pp., with illustrations. Springfield, Illinois: Charles C Thomas, 1953. $7.50. (Supplement to *Heredity*, Vol. 6.)

Twenty-four specialists participated in the symposium, discussing the various aspects of the subject. The papers are divided into four sections on radiation breakage, chemical breakage, secondary and spontaneous breakage, and general. Lists of references are appended to the various chapters, and the book is well published. The lack of an index detracts from its reference value. The printing was done in Great Britain.

Medical Research. Edited by F. H. K. Green, C.B.E., M.D., F.R.C.P.; and Major General Sir Gordon Covell, C.I.E., M.D., D.T.M. & H., D.P.H., I.M.S.(Ret.). 8°, cloth, 387 pp. London: Her Majesty's Stationery Office, 1953. 40s. net. *(Medical History of the Second World War.)*

This new volume in the series is devoted to the part played by medical research on health problems affecting the armed forces and the civilian population during World War II. The various sections are written by a number of persons. The subjects discussed include the safety and efficiency of the fighting man, wounds and injuries, war diseases, nutrition and malnutrition, public health, sulfonamides and the development of penicillin, industrial health, research in chemical defense and the biologic effects of explosions. Comprehensive bibliographies are appended to the chapters and there is a good index.

Affective Disorders: Psychoanalytic contribution to their study. Edited by Phyllis Greenacre, M.D. 8°, cloth, 209 pp. New York: International Universities Press, Incorporated, 1953. $3.00.

The five articles in this volume were presented in panel discussions at the meetings of the American Psychoanalytic Association held in 1950 and 1951. They deal principally with depression, and there is one on mania. There is an index, and the book is well published.

Lecture Notes on the Use of the Microscope. By R. Barer, M.C., M.A., B.Sc., M.B., B.S., university demonstrator in anatomy, University of Oxford, and Johnston, Lawrence and Koseley Research Fellow of the Royal Society. 12°, cloth, 76 pp., with 8 illustrations. Springfield, Illinois: Charles C Thomas, 1953. $2.00.

This small manual should be available to all persons, especially beginners, using the microscope. It is practical and not complicated. One of the *Blackwell Scientific Publications*, it was printed in Great Britain.

Peripheral Nerve Injuries: Principles of diagnosis. By Webb Haymaker, M.D., chief, Neuropathology Section, Armed Forces Institute of Pathology, Washington, D. C.; and Barnes Woodhall, M.D., professor of neurosurgery, Duke University School of Medicine. Second edition. 8°, cloth, 333 pp., with 272 illustrations. Philadelphia: W. B. Saunders Company, 1953. $7.00.

The first edition of this important book was published in 1945 and based largely on the experience in World War II. In this new edition the text has been thoroughly revised and brought up to date, and new material incorporated. The literature has been surveyed; there is a bibliography of seven pages and a good index. The book should be in all collections on neurology and surgery.

Standard Methods of Clinical Chemistry. Editor-in-chief, Miriam Reiner, director, Chemistry Laboratory, Gallinger Municipal Hospital, Washington, D. C. Volume 1. 8°, cloth, 142 pp., with illustrations. New York: Academic Press Incorporated, 1953. $4.50.

This volume, the first in an important series projected by the Association, is devoted to methods most frequently used in the clinical laboratory. The substances discussed are arranged alphabetically from amylase to uric acid. There are author and subject indexes. The book is authoritative and should be in all medical libraries and available to all laboratory workers.

Electrical Methods of Blood-Pressure Recording. By Frank W. Noble, M.E.E., National Heart Institute, National Institutes of Health, Public Health Service, Federal Security Agency, Bethesda, Maryland. 8°, cloth, 56 pp., with 12 illustrations. Springfield, Illinois: Charles C Thomas, 1953. $3.00. (Publication No. 155, *American Lecture Series.*)

The author discusses the hydraulic and electric systems that have been used in the diaphragm type of manometers. There is a bibliography and an index.

Respiratory Diseases and Allergy: New method of approach. By Josef S. Smul, M.D. 8°, cloth, 80 pp. New York: Medical Library Company, 1953. $2.75.

This small monograph discusses the allergic diseases of the respiratory system under the new term "respirallergy," and also infectious diseases of the same system.

Clinical Roentgenology: Developmental and systemic conditions and local lesions in the extremities. Volume 1. By Alfred A. deLorimier, M.D., radiologist, Saint Francis Memorial Hospital, San Francisco, consultant in radiology for the United States Army at the Letterman Army Hospital, and consultant in radiation therapy for the United States Public Health Service at the United States Marine Hospital, San Francisco; Henry G. Moehring, M.D., radiologist, Duluth Clinic, Duluth; and John R. Hannan, M.D., radiologist, Cleveland, and radiologist, Lake County Memorial Hospital, Painesville, Ohio. 4°, cloth, 492 pp., with 782 illustrations. Springfield, Illinois: Charles C Thomas, 1954. $18.50.

Planning Guide for Radiologic Installations. By the Committee on Planning of Radiologic Installations of the Commission on Public Relations of the American College of Radiology, Wendell G. Scott, M.D., chairman. 4°, cloth, 336 pp., with illustrations. Chicago: Year Book Publishers, Incorporated, 1953. $8.00.

NOTICES

SOCIETY MEETINGS AND CONFERENCES

May 24–26. Consultation Clinics for Crippled Children. Page 705, issue of April 22.
May 25. Sigma XI Lecture. Page 792, issue of May 6.
May 25. South End Medical Club. Page 849, issue of May 13.
May 27 and 28. New York Surgical Division of International College of Surgeons. Page 585, issue of April 1.
May 27–29. American College of Cardiology. Page 585, issue of April 1.
May 31–June 3. American Urological Association. Page xvii, issue of July 23.
June 5 and 6. International Association for the Study of the Bronchi. Page 400, issue of March 4.
June 11–13. American Electroencephalographic Society. Page 748, issue of April 29.
June 13–17. American Society of Medical Technologists. Page 444, issue of March 11.
June 14–16. American Neurological Association. Page 540, issue of March 25.
June 15–18. Medical Library Association. Page 491, issue of March 18.
June 17–19. American Geriatrics Society. Page 266, issue of February 11.
June 17–21. Pan American Congress of Ophthalmology. Page 540, issue of March 25.
June 19 and 20. Society for Investigative Dermatology. Page 540, issue of March 25.
June 23. Tufts Medical Alumni AMA Dinner. Page 585, issue of April 1.
July 22 and 23. International College of Surgeons. Regional Meeting. Page 828, issue of November 12.
July 25–29. International Cancer Congress. Page 914, issue of November 26.
July 26–31. International Congress of Gynecology and Obstetrics. Page 400, issue of March 4.
August 1–7. Pan-American Congresses of Pediatrics. Page 850, issue of May 13.
August 17–20. Argentine Congress of Thoracic Surgery. Page 708, issue of April 22.
September 6–10. International Poliomyelitis Congress. Page 399, issue of March 4.
September 7–10. Nineteenth Annual Congress of the United States and Canadian Sections of the International College of Surgeons. Page 828, issue of November 12.
September 12–15. Second International Congress of Cardiology. Page 44, issue of July 2.
September 16–18. American Heart Association. Annual Scientific Sessions. Page 44, issue of July 2.
October 8 and 9. Academy of Psychosomatic Medicine. Page 748, issue of April 29.
October 27. New England Obstetrical and Gynecological Society. Annual Meeting. Hotel Somerset, Boston.
December 13–17. Congress of Obstetrics and Gynecology. Page 748, issue of April 29.
June 21–25, 1955. National Association for the Prevention of Tuberculosis. Page 540, issue of March 25.

CALENDAR FOR THE WEEK BEGINNING THURSDAY, MAY 27

THURSDAY, MAY 27

*8:00–8:45 a.m. Case Presentations. Joslin Clinic. Joslin Auditorium, New England Deaconess Hospital.
*9:00–10:00 a.m. Arthritis Grand Rounds. Robert Breck Brigham Hospital.
*9:00–10:00 a.m. Grand Rounds. Russell Room, House of the Good Samaritan.
10:30–11:15 a.m. Lecture on Diabetes for Doctors and Patients by a Member of the Joslin Clinic. Joslin Auditorium, New England Deaconess Hospital.
*11:00 a.m.–12:00 m. Pediatric Conference. Mount Auburn Hospital, Cambridge.
*11:00 a.m.–12:30 p.m. Hand Clinic (Physical Medicine and Rehabilitation Service). Boston City Hospital.
11:00 a.m. Thoracic Conference. Intrathoracic Congenital Anomalies. Day Clinic. Presentation of Cases. Mr. Lance Bromley. Main Amphitheater, Peter Bent Brigham Hospital.
12:00 m.–1:00 p.m. Studies in Experimental Demyelination on Immunologic Grounds. Dr. Byron H. Waksman. Stearns Auditorium, New England Center Hospital.
*5:00–6:00 p.m. Surgical Division Meeting. Mount Auburn Hospital, Cambridge.

FRIDAY, MAY 28

*8:00–8:45 a.m. Case Presentations. Joslin Clinic. Joslin Auditorium, New England Deaconess Hospital.
*9:30–11:30 a.m. Medical and Surgical Grand Rounds. Drs. George W. Thorn and Francis D. Moore. Main Amphitheater, Peter Bent Brigham Hospital.
*10:00 a.m. Tuberculosis Surgical Clinic. South End Health Unit, 57 East Concord Street.
10:30–11:15 a.m. Lecture on Diabetes for Doctors and Patients by a Member of the Joslin Clinic. Joslin Auditorium, New England Deaconess Hospital.
*1:30 p.m. Fertility and Endocrine Clinic. Free Hospital for Women, Brookline.
*1:30 p.m. Tumor Clinic. Mount Auburn Hospital, Cambridge.
*4:00–10:00 p.m. Alcoholism Clinic. By appointment. Washingtonian Hospital, 41 Waltham Street.

SATURDAY, MAY 29

*8:00–8:45 a.m. Case Presentations. Joslin Clinic. Joslin Auditorium, New England Deaconess Hospital.
*8:30–10:00 a.m. Orthopedic Staff Conference. Boston City Hospital.
*9:00 a.m. Proctology Clinic. Peter Bent Brigham Hospital.
*9:00 a.m. Alcoholism Clinic. Peter Bent Brigham Hospital.
10:30–11:15 a.m. Lecture on Diabetes for Doctors and Patients by a Member of the Joslin Clinic. Joslin Auditorium, New England Deaconess Hospital.
*11:00 a.m.–12:00 m. Hematology Clinic. Dr. William Dameshek, Pratt Auditorium, New England Center Hospital.

MONDAY, MAY 31

*8:00–8:45 a.m. Case Presentations. Joslin Clinic. Joslin Auditorium, New England Deaconess Hospital.
*8:00–9:00 a.m. Medical and Surgical Clinic on Diabetic Foot Problems. New England Deaconess Hospital.
*8:30–9:30 a.m. Clinic by entire Surgical Staff and Anesthesia Staff. Cheever Amphitheater, Dowling Building, Boston City Hospital.

(Notices concluded on page xxv)